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Greater Confidence Stirs Market

Buyers, Anticipating Favorable Election Result, Place Heavier Orders for Future Delivery —Pig Iron Movement Gains Force—Western Mills, Filling Up, Advance Steel Prices—October Scores Large Increase in Pig Iron Production

GREATER confidence in the future has been marked by the heavier volume of buying which has spread into virtually all lines of iron and steel the past week. A large fraction of this tonnage was placed before election day signifying the general faith that was entertained as to a satisfactory outcome. A number of orders for steel and other metal products placed some days previously and made contingent upon the result of the election also has been released. Accompanying the enlarged volume of new orders and inquiry has been a perceptible hardening of prices both in finished steel and pig iron.

Pressure for tonnage on Chicago mills where the recent buying has been greatest, is more insistent. In steel bars in which practically nothing but 1925 delivery now is possible, limiting of tonnages by producers is necessary because some buyers have been attempting to overspecify their contracts. Bar bookings in October by some Chicago mills were the largest in two years. The fuller order books have stiffened all Chicago steel prices and in plates, shapes and bars a $2 per ton advance has become effective. Pittsburgh mills now are holding steel bars and shapes at a minimum of 2.00c, Pittsburgh, and leading valley and eastern plants are doing similarly. A considerable tonnage for shipment this year has been taken at this figure. Plates though firmer have not advanced. Large tonnages of this material have been placed quietly at Pittsburgh and Chicago. Sheets are less erratic.

The stiffening tendency of prices has not yet reached all parts of the market and IRON TRADE REVIEW composite of 14 leading iron and steel products this week is again a shade lower or $38.56. It has fallen only 11 cents in the past month,

Output Gain Heavier

October showed the largest gain in pig iron production since the upward turn was made in August. Its total was 2,461,444 tons, an increase of 407,827 tons over September. On an average daily basis it showed 79,401 tons compared with 68,454 tons the preceding month, or a gain of 16 per cent. Since July production has expanded 38 per cent but still is 29 per cent below the record mark of the year in March. The number of furnaces active at the end of October was 182, a gain of 8 over the corresponding date in September.

Close 1925 Tonnage

A broad buying movement in pig iron through the first quarter of 1925 has gained momentum during the week. Sellers declare rarely in their experience have they seen a demand of such size develop on the eve of a presidential election. Furnace companies with headquarters in Cleveland sold fully 45,000 tons in the week and have inquiry pending totaling 50,000 to 100,000 tons including 40,000 to 50,000 tons for the American Radiator Co. Other large buyers have come out. At New York 50,000 tons is pending and corresponding amounts in other centers. Recent sales of basic at Pittsburgh have aggregated 15,000 tons, largely at $18.50 valley and one round tonnage is pending. Prices show more evidence of firmness with individual furnaces at Buffalo and Cincinnati have advanced 50 cents.

The railroads are keeping up their place as the market's leading buyer. In the week the Missouri Pacific bought 30,000 tons of rails and the Nickel Plate has authorized 20,000 tons. The recent St. Paul order called for 35,000 tons. Large lots of track fastenings still are being placed. A large number of cars are in the negotiations stage.

Big Awards Expected

Building work is well sustained. At Chicago proposals for a total of 60,000 tons of structural steel for spring delivery are about to be closed. The Illinois Central railroad is inquiring for 7000 tons for shop construction. New York again has had some large awards, of which 8500 tons for a loft building and 6000 tons for a subway section in Brooklyn are notable. Total awards reported for the week were 27,681 tons.

With the conservative party again in power, British industry has taken on a fresh impetus. Buying of iron and steel is reviving. Belgian state railways have bought 75,000 tons of rails from home makers.

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Making Figures More Intelligible

THE value of charts in studying the movements of important factors in industry never was better illustrated than in the article "Iron Output and Prices Related," by Col. L. P. Ayres, on page 1232 of this issue of IRON TRADE REVIEW. That there is a relationship between pig iron production and prices has been observed and commented on

Annealing Castings Electrically. Page 1225

many times. Those who make and sell pig iron, those who buy it, and those who report market conditions know that after a period of high production, blast furnaces go down, and prices sag, and this continues until the demand picks up, larger tonnage is required and prices move in the same direction. However, the exact relationship cannot be understood without resort to a tabulation of figures, and most certainly these are best visualized by means of charts with brief explanatory text. The figures convey the definite facts and the arrangement indicates the underlying trend.

Cross Sections of Industry

"The average investment per mill including steelworks is approximately $5,310,000, while the average value of the products per year is $5,658,000."—*From IRON TRADE REVIEW'S Survey, "Lubrication".*

Pig Iron Inquiry Heavy—Radiator Company Buying Over 35,000 Tons—45,000 Tons Sold by Cleveland Interests

PITTSBURGH, Nov. 4.—During the closing days of October the pig iron market became active because of the efforts of several consumers to gather in tonnages of basic iron at low figures on a "take it or leave it" proposition. It is estimated that a trifle under 15,000 tons was involved in this movement, some of which went at $18.50, valley, and some at $18.50 valley equivalent. The Allegheny Steel Co. after buying 2000 tons from a Pennsylvania furnace having a shorter freight rate than the valley rate, closed on several thousand tons with its regular source of supply on an exchange or reciprocal basis. The West Penn Steel Co. also bought 5000 or 6000 tons, some of which was sold by a valley merchant furnace at $18.50, valley. The Sharon Steel Hoop Co. bought 2000 tons at the same figure.

The Follansbee Bros. Co., bought 2000 tons from a nearby source, stating to valley producers which quoted $19, valley, that figure was far out of line. A report appearing in another publication that the Pittsburgh Steel Co. bought 2000 tons and the Wheeling Steel Corp., 10,000 tons, is denied by the principals. Because there was no activity in basic earlier in the month, the sales at $18.50 valley, explain why the average sales price, as compiled by W. P. Snyder & Co. for October was $18.50, as compared with $19, its average for September, August and July. The Snyder company's average on bessemer for October was $20, the same as in August and September. Bessemer pig iron now is quoted at $20, valley. One maker sold a user here 1500 tons at $19.50, valley, contingent upon the acceptance of 5000 tons of basic at $19, but final details have not been worked out. The bessemer price would net $20. The interest proposing the sale states it will not sell any more basic at $18.50.

An inquiry for a carload of malleable, from $19 to $19.50 has been quoted. One large car producer is understood to have closed several weeks ago with its regular source of supply on 20,000 tons but no price details are available. Low phosphorus continues to be sold at $28 to $29, valley, depending upon quantity and analysis.

Firmer Prices at Boston

Boston, Nov. 4.—Nearly all active pig iron sellers in this district have recently advanced their base prices by approximately 50 cents. One of the leading Buffalo furnaces has withdrawn all prices in anticipation of establishing higher levels, and is only quoting at present against individual offers. Recent sales have been surprisingly large. A Rhode Island consumer bought 500 tons, and at least three Connecticut consumers took lots of 300 tons or more. A Massachusetts textile machine manufacturer bought 600 tons and a Massachusetts radiator manufacturer is understood to have placed 2000 tons, and to be on the point of placing 1500 tons additional. Other scattered lots of 100 and 200 tons have been numerous. Part of this business was placed just previous to furnace advances, to cover at the old levels. Because of the well booked condition of eastern furnaces for the balance of 1924, iron for that delivery is frequently held at a premium. Eastern Pennsylvania No. 2X (2.25 to 2.75 silicon) which could be obtained at $20 a week ago now is firm at $20.50, and several Pennsylvania furnaces are holding to a $20.50 base price which means $24.15 delivered New England. Buffalo iron still is obtainable at $19 for No. 2X, although the bulk of the recent sales in New England have been at $19.50 for this grade.

Larger Buyers in Market

New York, Nov. 4.—Uncertainty with respect to the attitude of pig iron producers toward first quarter business last week was removed to some extent by the fact that a large Buffalo interest opened its books for first quarter. It was soliciting tonnage for this position at the current price, namely, $19 base Buffalo. Beginning this week, the Buffalo maker withdrew from the market and is quoting each inquiry individually.

Pennsylvania furnaces hesitate to sell much first quarter iron, as they have been impressed with the recent improvement in the statistical position of pig iron, and advance of 50 cents to $1 over present prices would mean much to them. There have been some sales of eastern Pennsylvania iron for the first quarter at $21, base furnace, but the total of this business has not been large, and the Pennsylvania furnaces have not solicited first quarter business in many instances. Now, however, the big buyers are beginning to come into the market for first quarter requirements on a large scale. The American Radiator Co. has the largest inquiry out. It is in the market for 12,000 tons of foundry for first quarter shipment to its Bayonne plant. The New York Air Brake Co. is inquiring for 5500 tons for first quarter. The Thatcher Furnace Co., Newark, is inquiring for an indefinite amount of iron for first quarter and is expected to buy 3000 to 4000 tons. The Richardson & Boynton Co., Dover, has not yet inquired but is expected to come in the market shortly for 4000 to 5000 tons. Inquiries include approximately 7500 tons for the first quarter for the Central Foundry Co., and the Essex Foundry Co., Newark, N. J.

It is understood that the Eastern Malleable Iron Co. has been placing some business quietly and is about to place more. An interesting inquiry now before the trade is that of the A. P. Smith Mfg. Co., East Orange, N. J., which wants 800 tons of foundry for the second quarter of next year. This consumer has been buying for a longer period ahead than the average consumers, in addition to the above there are other inquiries out. In fact, the current inquiries, together with tonnages expected to come out shortly, aggregate close to 50,000 tons.

Makers in Strong Position

Philadelphia, Nov. 4.—Eastern makers generally are firm on pig iron prices, not only because they are sold up for this year, but because of heavy inquiries now pending for the first quarter. The statistical position is the best in over a year. It is estimated stocks at all eastern plants, including all furnaces of the Bethlehem Steel Co. aggregate under 250,000 tons, which is unusually small. Foundry sales in the past week brought $20.50 to $21, base furnace. The present disposition of makers is to ask $21, base furnace, as minimum for the remainder of the year, while their idea for the first quarter is $21 to $21.50 base. Eastern furnaces hesitate to quote for the first quarter. It is expected, however, the first quarter price soon will be clarified in connection with some 50,000 tons pending in the New York territory. Developments here are less spectacular. It is understood considerable foreign foundry iron has been bought by Delaware river pipe makers. A Virginia pipemaker bought

5000 tons of Alabama iron. The Pennsylvania railroad's inquiry for 1000 to 2000 tons of No. 2X still is pending. Otherwise, large business is lacking. It is expected a large basic tonnage will come out this week or next. The past week's business included numerous small lots of low phosphorus copperbearing iron at $24, furnace. Copper-free iron is equivalent to $27.79 delivered, Philadelphia. A feature of the market is the scarcity of high silicon foundry iron for which $23, furnace, is obtained in some instances. Producers believe the strong statistical position can be discounted somewhat by the fact so many furnaces are idle, and some undoubtedly will be blown in soon as prices show some advance.

Buying Movement Started

Cleveland, Nov. 4.—Confidence in a satisfactory outcome of the election was so great and widespread that a buying movement in the pig iron market developed last week, and is attaining large proportions. More pig iron was purchased last week, and more tonnage remained pending largely for first quarter, than in any similar period in the last four months. The first indication of this buying was reported in last week's issue of IRON TRADE REVIEW, with sales by the leading interests represented here at 20,000 tons for the preceding seven days. Last week they booked, collectively, 45,000 tons of iron, making 65,000 tons for the two weeks prior to election. The oldest sellers do not recall any time when there was such a burst of activity preceding an election, with issues so complex. The American Radiator Co. Monday was negotiating for around 50,000 tons of pig iron for its various plants, the understanding among sellers being that much of this would be closed before election day. The company wanted 12,000 tons for Bayonne, N. J., about 10,000 tons for Detroit, 3000 for Springfield, O., and large amounts for Buffalo, Chicago and other plants. The Link-Belt Co. was in the market for 3000 tons for Indianapolis. The New York Air Brake Co. wanted 5500 tons. A leading producer with furnaces here and further east estimates that with the radiator company's inquiries, the total runs to 100,000 tons. This company's sales last week amounted to 18,000 tons. A Cleveland furnace company places its inquiries at 40,000 to 50,000 tons, including in this only the 3000 tons for the radiator company's Springfield plant. A lake furnace, after selling 11,000 tons last week, on Monday was figuring on 35,000 tons on inquiries. A leading merchant interest's sales of the week totaled 15,000 tons. Included in the week's sales was one lot of 6000 tons for an Ohio foundry, and another of 3000 tons. A foundry at Indianapolis closed for 1500 tons of malleable. Several other 1500-ton and 2000-ton sales were reported. Some furnace companies have insisted on buyers' closing before election day on the prices quoted. One seller took a few important orders, with the buyers reserving the right to cancel Wednesday. One maker has marked up its Cincinnati price 50 cents to $20.50, base, and booked considerable iron at that figure. The general price in the valley is $19.50. Cleveland furnaces still quote $20 base, or $20.50 delivered in the 50-cent switching area. The inquiry pending includes a good tonnage of basic for a nearby user. A Cleveland maker quotes $20, minimum, on basic.

Buffalo Market Stronger

Buffalo, Nov. 4.—Pig iron inquiry again shows an upward turn, with the present total estimated at close to 25,000 tons. The list is made up of lots of 200 to 1000 tons, representing all classes of foundries. A good portion of the inquiry is for first quarter. The Rogers, Brown & Co. today announced its first quarter price schedule as $20 for No. 2 plain; $20.50 for No. 2X, and $21.50 for No. 1X. It reported demand as very active.

Within this district $19.50 base appears minimum but elsewhere $19 is being named by some producers. One Buffalo maker, well sold up for the balance of 1924 will not shade $20, and another is out of the market. One or possibly two others doing $19.50 are not offering iron at this price beyond December. Scarcity of high silicon grades makes it easy for sellers to obtain differentials. The generally quoted price on No. 2X is $20.50, and on No. 1X $21.50, although it is possible sales have been made 50 cents under both prices. Production in the Buffalo district has been increased by the placing in blast of the American

(*Concluded on Page* 1204)

Prices Present and Past

Representative market figures yesterday, and for last month, three months ago and one year ago

	Nov. 5, 1924	Oct., 1924	Aug., 1924	Nov., 1923
PIG IRON				
Bessemer valley del., Pitts....	$21.76	21.76	21.76	25.47
Basic, valley	18.50	19.00	19.00	20.80
Basic, eastern del., eastern Pa.	20.25	20.00	20.00	22.60
*No. 2 foundry, del. Pitts....	20.76	21.26	21.01	23.77
**No. 2 foundry, Chicago	20.50	20.50	20.40	23.30
*Southern No. 2, Birmingham..	17.50	17.50	17.90	19.25
*Southern Ohio, No. 2, Ironton	20.00	20.00	19.75	22.50
**No. 2X, Virginia furnace....	24.50	24.50	24.50	25.00
**No. 2X, eastern, del. Phila....	22.26	21.36	21.76	23.01
Malleable, valley	19.50	19.50	19.00	20.40
Malleable, Chicago	20.50	20.50	20.40	23.30
Lake Superior charcoal, Chicago	29.04	29.04	29.04	28.65
Gray forge, val., del. Pittsburgh	20.26	20.76	20.51	23.27
Ferromanganese, del., Pitts.....	104.79	104.79	98.79	113.79
SEMIFINISHED MATERIAL				
Sheet bars, bessemer, Pittsburgh	37.00	37.20	38.00	42.50
Sheet bars, open-hearth, Pitts....	37.00	37.20	38.00	42.50
Billets, bessemer, Pittsburgh	35.50	36.60	38.00	41.50
Billets, open-hearth, Pittsburgh.	35.50	36.60	38.00	41.50
FINISHED MATERIAL				
Steel bars, Pittsburgh	2.00	2.00	2.10	2.40
Steel bars, Chicago	2.00	2.00	2.15	2.50
Steel bars, Philadelphia	2.27	2.32	2.47	2.72
Iron bars, Philadelphia	2.32	2.32	2.42	2.62
Iron bars, Chicago mill	2.10	2.10	2.15	2.40

*1.75 to 2.25 silicon. **2.25 to 2.75 silicon.

	Nov. 5, 1924	Oct., 1924	Aug., 1924	Nov., 1923
FINISHED MATERIAL (Continued)				
Beams, Pittsburgh	2.00	2.00	2.05	2.50
Beams, Philadelphia	2.07	2.12	2.32	2.72
Beams, Chicago	2.10	2.00	2.15	2.60
Tank plates, Pittsburgh	1.80	1.80	2.00	2.50
Tank plates, Philadelphia	1.87	1.92	2.07	2.72
Tank plates, Chicago	2.10	2.00	2.15	2.60
Sheets, blk., No. 28 Pittsburgh	3.40	3.40	3.50	3.75
Sheets, blue anl., No. 10, Pitts.	2.60	2.60	2.70	3.00
Sheets, galv., No. 28, Pittsburgh	4.60	4.60	4.60	4.85
Sheets, black, No. 28, Chicago ..	3.65	3.65	3.85	4.10
Sheets, blue anl. No. 10 Chicago	2.85	2.85	3.05	3.35
Sheets, galv. No. 28, Chicago ..	4.75	4.75	4.95	5.20
Wire nails, Pittsburgh	2.75	2.75	2.85	3.00
Wire nails, Chicago	2.90	2.90	3.15	3.35
COKE				
Connellsville furnace, ovens.....	3.00	3.00	3.00	3.80
Connellsville foundry, ovens	4.00	4.00	4.00	4.85
OLD MATERIAL				
Heavy melting steel, Pittsburgh.	19.00	18.20	17.75	15.70
Heavy melting steel, eastern, Pa.	17.50	17.20	17.00	15.50
Heavy melting steel, Chicago..	16.75	16.25	15.40	13.80
No. 1 wrought, eastern Pa.....	18.75	18.75	18.50	17.75
No. 1 wrought, Chicago	16.75	15.95	15.75	14.10
Rails for rolling, Chicago	17.25	17.20	16.00	15.10

Composite Market Average

Representing the Combined Average Prices Per Ton of Fourteen Leading Iron and Steel Products Yesterday, One Week, One Month, Three Months, One Year and Ten Years Ago.

Nov. 5, 1924	Oct. 29, 1924	Oct., 1924	August, 1924	Nov., 1923	Nov., 1914
$38.56	$38.61	$38.65	$39.33	$42.81	$23.39

Products Included Are Pig Iron, Billets, Slabs, Sheet Bars, Wire Rods, Steel Bars, Plates, Structural Shapes, Black, Galvanized and Blue Annealed Sheets, Tin Plate, Wire Nails and Black Pipe

Iron and Steel Prices

SCRAP PRICES, PAGE 1262; WAREHOUSE, PAGE 1258; ORE, NUTS, BOLTS AND RIVETS AND PIPE PRICES, PAGE 1266

Pig Iron

Prices per gross ton

Bessemer, valley	$19.50 to 20.50
Bessemer, Pittsburgh	21.26 to 22.26
Basic, valley	18.50
Basic, Pittsburgh	20.26
Basic, Buffalo	19.00
Basic del., eastern Pa.	20.25 to 20.50
Malleable, valley	19.00 to 19.50
Malleable, Pittsburgh	20.76 to 21.76
Malleable, Cleveland, del.	21.00 to 21.50
Malleable, Chicago	20.50 to 21.00
Malleable, Buffalo	19.00 to 19.50
Malleable, del., eastern Pa.	22.25 to 22.75

FOUNDRY IRON SILICONS

No. 2 Northern	1.75 to 2.25
No. 2 Southern foundry	1.75 to 2.25
No. 2X Eas'n and Virgina	2.25 to 2.75
No. 1X Eastern	2.75 to 3.25
No. 1 Chicago	2.25 to 2.75
No. 2 foundry Eastern	1.75 to 2.25

No. 1X, eastern del., Phila.	22.76 to 23.76
No. 1X, Buffalo	21.00 to 21.50
No. 1 foundry, Chicago	21.00 to 21.50
No. 2 foundry, valley	19.00
No. 2 foundry, Pittsburgh	20.76
No. 2 foundry, Buffalo	19.50 to 20.00
No. 2 foundry, Chicago	20.50 to 21.00
No 2 foundry, Granite City	21.50 to 22.00
No. 2 foundry, Ironton fur.	20.00
No. 2 foundry, Cleveland, del.	21.00 to 21.50
No. 2 foundry, del., Phila.	27.76 to 22.26
No. 2 foundry, N. J., tidewater	21.89 to 22.39
No. 2X, eastern del., Phila.	22.26 to 22.76
No. 2X, east. N. J. tidewater	22.39 to 22.89
No. 2X, eastern del., Boston	24.15 to 24.65
No. 2X, foundry, Buffalo fur.	20.00 to 20.50
No 2X, Buffalo, del. Boston	24.41 to 24.91
No. 2 southern, Birmingham	17.50 to 18.00
No. 2 southern, Cincinnati	21.05 to 22.05
No. 2 southern, Philadelphia	25.30 to 25.80
No.2 southern, Chicago	23.51 to 24.01
No 2 southern, Cleveland	23.51 to 25.01
No. 2 southern, Boston (rail and water)	24.41 to 24.91
No. 2 southern, St. Louis	22.67 to 23.17
No. 2X, Virginia furnace	24.50
No. 2X, Virginia, Phila.	29.67
No. 2X, Virginia, Jersey City	30.04
No. 2X, Virginia, Boston	30.42
Gray forge, eastern Pa.	20.50
Gray forge, val. del., Pitts.	20.26 to 20.76
Low phos., standard, valley	28.00 to 29.00
Low phos., standard, Phila.	27.79
Low phos., Lebanon, furnace	24.00 to 24.50
Charcoal, *Birmingham	30.00
Charcoal, Superior, Chicago	29.04

Silvery iron, Jackson county, Ohio, furnace, 7 to 8 per cent, $29.00; 8 to 9 per cent, $30.50; 9 to 10 per cent, $32.50; 10 to 11 per cent, $34.50; 11 to 12 per cent, $37.00; 12 per cent, $39.50.

Bessemer ferrosilicon, Jackson county, Ohio, furnace, 10 to 11 per cent, $39.50; 11 to 12 per cent, $42.00; 12 to 13 per cent, $44.50.

Silvery and bessemer ferrosilicon prices subject to some shading.

Ferroalloys

†Ferromanganese 78 to 82 per cent, tidewater, or furnace first hand and resale	$100.00
Ferromanganese delivered Pittsburgh	104.79
Spiegeleisen 19 to 21 per cent domestic furnace or tidewater	32.00 to 33.00
Ferrosilicon, 50 per cent contract freight allowed	72.00 to 75.00
Ferrotungsten standard, cents per pound contained	86.00 to 88.00
Ferrochrome, 60 to 70 chromium, 6 to 8 carbon, cents per pound contained, del.	10.00 to 10.25
Ferrovanadium, 30 to 40 per cent per pound estimated, according to analysis	3.25 to 3.75
Ferro-carbon-titanium, car lots, producer's plant, net ton	200.00

†Duty paid.

Coke

Beehive, Ovens
Prices per net ton

Connellsville, furnace	3.00 to 3.25
Connellsville foundry	4.00 to 4.50
New river foundry	8.50 to 9.00
Wise county furnace	3.75 to 4.00
Wise county foundry	4.50 to 5.00
Alabama furnace	4.25 to 4.50
Alabama foundry	4.50 to 5.00

By-Product

Foundry, Newark, N. J., del.	$10.41
Foundry, Chicago, ovens	10.75
Foundry, New England del.	11.50
Foundry, St. Louis	11.00
Foundry, Granite City, Ill.	9.00
Foundry, Alabama	4.50 to 5.00

Semifinished Material

Prices per gross ton

BILLETS AND BLOOMS

4 x 4-inch and larger

Pittsburgh and Youngstown	$35.50 to 36.00
Philadelphia	40.80 to 41.30
Chicago	35.00 to 37.00
Forging, Pittsburgh	40.50 to 42.00
Forging, Philadelphia	45.30 to 46.30

SHEET BARS

Pittsburgh and Youngstown	37.00

SLABS

Pittsburgh	35.50 to 36.00
Youngstown	35.50

WIRE RODS

¼-inch and finer

Wire rods, Pittsburgh	$45.00 to 46.00
Wire rods, Cleveland	46.00
Wire rods, Chicago	49.00

Standard extras, $2.50 per ton over ¼-inch; $5 for screw stock; $15 for acid wire rods. Carbon extras, $3 for 0.20 to 0.40; $5 for 0.41 to 0.55; $7.50 for 0.56 to 0.75; $10 over 0.75.

SKELP

Grooved skelp, Pittsburgh	1.90c to 2.00c
Universal skelp, Pittsburgh	1.90c to 2.00c
Sheared skelp, Pittsburgh	1.90c to 2.00c

Structural Shapes

Prices per pound

Pittsburgh	1.90c to 2.00c
Philadelphia	2.02c to 2.22c
New York	2.04c to 2.24c
Chicago	2.10c
Cleveland	2.09c to 2.19c
Birmingham	2.05c to 2.15c

Steel Plates

Pittsburgh	1.80c to 1.90c
Philadelphia	1.82c to 2.02c
New York	1.94c to 2.04c
Chicago	2.10c
Cleveland	1.99c to 2.09c
Birmingham	2.05c to 2.15c

Iron and Steel Bars

Bars, soft steel, Pittsburgh	1.90c to 2.00c
Bars for cold finishing, Pitts.	2.15c
Bars, forging quality, Pitts.	2.25c
Bars, soft steel, Philadelphia	2.22c to 2.32c
Bars, soft steel, New York	2.24c to 2.34c
Bars, soft steel, Chicago	2.00c
Bars, soft steel, Cleveland	2.14c to 2.19c
Bars, soft steel, Birmingham	2.05c to 2.15c
Bars, soft steel, San Francisco	2.45c
Bars, refined iron, Pittsburgh	2.80c to 4.50c
Bars, rail steel, Chicago	2.03c
Bars, rail steel, mill	1.90c to 2.00c
Bars, reinforcing, billet, Pitts.	2.00c
Bar iron, common, Phila.	2.32c
Bar iron, common, New York	2.34c
Bar iron, common, Chicago	2.10c to 2.15c

Hoops, Bands, Strip

Prices per pound f.o.b. mills

Hoops, Pittsburgh, under 5 in.	2.50c to 2.60c
Hoops, Pittsburgh, 20 gage, under 1 in.	2.75c to 2.90c
Bands, Pittsburgh	2.40c to 2.50c
Hot rolled strip steel, Pittsburgh stamping quality	2.25c to 2.50c
Cold rolled strip steel, hard coils, 1½ inches and wider by 0.100-inch and heavier, base, Pittsburgh, Cleveland	4.00c
Chicago and Worcester, Mass.	$3 per ton higher.

Cold Finished Steel

Prices per pound

Cold finished steel bars, drawn or rolled Pittsburgh, Chicago, carloads	2.70c
Cold-finished steel bars, drawn or rolled Pittsburgh, Chicago, less carloads	2.95c
Steel shafting, turned and polished Pittsburgh, Chicago	2.70c

Screw stock base Cleveland and Worcester $1 higher than Pittsburgh and Chicago.

Rails, Track Material

Standard bessemer rails, mill	$43.00
Standard open-hearth rails, mill	43.00
Relaying rails, St. Louis	27.00 to 32.50
Relaying rails, Pittsburgh	27.00 to 30.00
Light rails, 25 to 45, mill	1.80c to 1.85c
Angle bars, Chicago base	2.75c
Spikes, railroad, Pittsburgh	2.70c to 2.80c
Spikes, small railroad, 7/16-inch and smaller, Pittsburgh	3.00c to 3.15c
Spikes, boat and barge, Pitts.	3.25c
Spikes, railroad, Chicago	2.80c
Track bolts, Pitts. standard	3.75c to 4.00c
Track bolts, Chicago	3.80c
Tie plates, Pittsburgh	2.30c
Tie plates, Chicago	2.30c

Spike, tie plate and truck bolt prices for carlots.

Wire Products

To Jobbers in Carloads
Prices per pound

F.o.b. Cleveland and Pittsburgh base

Wire nails	2.75c
Galv'd nails, 1-inch and over	3.00c
Plain wire	2.50c
Annealed wire	2.65c
Galvanized wire, No. 9 gage	3.10c
Barbed wire, painted	3.20c
Barbed wire galvanized	3.45c
Polished staples	3.20c
Galvanized staples	3.45c
Coated nails, count keg	2.10c to 2.15c
Woven wire fencing (retailers) 12½ gage, 26-in. high 7 bars and 12-in. stays per 100 rods, f.o.b. Pittsburgh	$20.03

Joliet, DeKalb and Waukegan, Ill., $2 per ton over Cleveland-Pittsburgh base on products made there, Worcester and Fairfield, Ala. $3 higher. Duluth $4 higher. Chicago delivered price $3 higher, Anderson, Ind., $1 higher.

Sheets

Prices per pound

SHEET MILL BLACK

No. 28, Pittsburgh base	3.40c to 3.50c
No. 28, Philadelphia, delivered	3.62c to 3.82c
No. 28, Gary, Indiana Harbor	3.60c
No. 28, Chicago, delivered	3.65c

TIN MILL, BLACK

No. 28, Pittsburgh, base	3.40c to 3.50c
No. 28 Gary base	3.60c

GALVANIZED

No. 28, Pittsburgh, base	4.50c to 4.60c
No. 28, Philadelphia, delivered	4.82c to 4.92c
No. 28, Gary, Indiana Harbor	4.70c
No. 28, Chicago, delivered	4.75c

BLUE ANNEALED

No. 10, Pittsburgh, base	2.60c to 2.70c
No. 10, Philadelphia, delivered	2.92c to 3.02c
No. 10, Gary, Indiana Harbor	2.80c
No. 10, Chicago, delivered	2.85c

AUTOMOBILE SHEETS

No. 22, Pittsburgh, base	4.60c

Tin Plate

Prices per 100-pound box, Pittsburgh

Tin plate, coke base	$5.50

Gary, Ind. base 10 cents higher

Iron and Steel Pipe

Base Discounts Pittsburgh and Lorain, O. to Jobbers in Carloads

	Black	Galv.
1 to 3-inch, butt steel	62	50½
1 to 1½-inch, butt iron	30	13

Indiana Harbor, Ind. and Evanston, Ill., 2 points less and $4 per ton higher

Chicago delivered 2½ points less and $5 per ton higher.

Boiler Tubes

Less Carload Discounts—Carloads 4 Points Additional—f.o.b. Pittsburgh Mills

Steel 1¼ to 3½-inch	38½
Charcoal iron, 3¼ to 4½-inch	5
Seamless hot rolled, 3½ to 3¾-inch	35

Chain, Piling, Cut Nails

Prices per pound

Chain, 1-in. proof coil, Pitts.	6.00c
Sheet piling base, Pittsburgh	1.95c to 2.05c
Cut nails, f.o.b. mills	2.90c

Hot Rolled Alloy Steels

Price per pound, Pittsburgh base

S. A. E. Series—	
2300 (3½ per cent nickel)	4.75c
3100 (nickel chromium)	3.65c to 3.75c
6100 (chrome vanadium)	4.50c to 4.75c
6100 (Chrome vanadium spring)	4.00c to 4.25c
9250 (Silico manganese spring)	3.15c to 3.50c

Billets—4 x 4 to 10 x 10, gross ton at net ton bar price; under 4 x 4 to 2½ x 2½-inch, $5 higher.

Chicago base price, $2 per ton above Pitts.

Scrap Gains in Strength

Sentiment and Actual Demand in Important Centers Cause Higher Quotations—Waiting Attitude Interpreted as Favorable to Market

SCRAP PRICES, PAGE 1262

Chicago, Nov. 4.—Dealers in iron and steel scrap continue to enjoy a lively market but so far consumers have let it be largely one-sided. Talk among producers of higher prices and confidence that the election will turn out favorably confirm dealers generally in their bullish attitude. Even if consumers do force a reaction, dealers and brokers believe that much of the present gains can be retained. The busheling grades have advanced 50 cents on the belief that a local bar iron maker is about to buy. A recent sale of No. 1 wrought slightly under $16 net seems to warrant an advance of $1 in this grade, bringing both grades of wrought to a parity with heavy melting steel, which is now $16.75 to $17.25. Trading in steel among dealers is active at $17 and $17.25. Advances have been made in both grades of forge scrap, grate bars, No. 1 railroad cast, railroad malleable, locomotive tires, low phos punchings, railroad specialties and shoveling steel.

Boston Market Waits

Boston, Nov. 4.—Trading in iron and steel scrap is practically at a standstill. Steel scrap which descended to $11.50 shipping point early in the week has rallied and is now firm at $12. Apparently there is much underlying confidence and consumers' interest is well maintained though a waiting program appears to be the rule. Mixed borings and turnings have sold in moderate lots for shipment to Pennsylvania steel works. The prevailing price has been $9 on cars shipping point. The Portland Rolling Mills has come into the market for several cars of shafting and is expected to place further orders soon. The cast grades are marking time with prices unchanged. Strictly textile scrap can be bought at $18.50 delivered. The Boston & Maine railroad has recently disposed of 1500 tons of accumulated scrap. The Boston Elevated sold 1100 tons of rails a few days ago. Prices on all of this material, considering the present lack of trading, were favorable.

No Action in East

New York, Nov. 4.—Iron and steel scrap continue to mark time. Considerable tonnage is in prospect and some good business should materialize shortly. Prices are unchanged. As a matter of fact, there has been but one revision in the past two weeks, a reduction of 25 cents in turnings about ten days ago.

Higher at Philadelphia

Philadelphia, Nov. 4.—More competition among dealers to obtain scrap, small tonnages coming out and scarcity to meet needs have caused consumers to advance their offered prices on some grades. Borings, turnings, heavy cast, bundled sheets and stove plate all are around 50 cents higher. Business has been good in scattered lots but there have been no large single transactions.

Prices Are Firming Up

Pittsburgh, Nov. 4.—Because good heavy melting steel scrap is scarce in this district, as are other grades of high quality, high prices are being paid. Principal consuming points are using about 35,000 tons of heavy melting steel scrap monthly and this is not available despite a thorough canvass of all scrap producing sources, including yards. This condition has caused more consumers to offer $19 for large tonnages of heavy melting steel but dealers are indifferent and have paid $19.25 and higher for delivery to nearby points. More interest is apparent on the part of consumers. Cast grades are weak due to low prices of pig iron. Some distress lots have been sold at $18 and lower, mostly in single carloads, and are not representative of the market. Steel axles, cast iron borings, iron car wheels bundled sheets, compressed sheets, and machine shop turnings are up 50 cents. The market has several inconsistent features, machine shop turnings being $1 above shovel turnings which usually command a premium over machine shop turnings The Pennsylvania railroad list is due Nov. 6, aggregating over 40,000 tons.

Buffalo Market Is Higher

Buffalo, Nov. 4.—There is increased interest in scrap with melters beginning to inquire for future needs. This has given prices increased firmness and nominal advances of about 50 cents a ton in active materials. One Buffalo steelworks will pay $17 for heavy melting steel and another will pay up to $17.50. Heavy shipments on old contracts are being made, a good sized lot of scrap for a Buffalo melter having been shipped from the Hudson valley by canal. Hydraulic compressed and loose bundled sheets have advanced 50 cents a ton and can be sold at the new levels. Stove plate is weak at $1.25 to $1.75 below the high point of $16.75 established in October. There has been a good demand for railroad wrought at $16 to $16.50. Borings are slightly more active and up 50 cents to $13 to $13.50 but turnings are unchanged, $1 under this level. Pittsburgh and Valley melters will not pay enough more than Buffalo to induce dealers to pay freight to those points.

Cleveland Feels Impulse

Cleveland, Nov. 4.—Activity in iron and steel scrap still is confined to dealers. These are indulging in much speculation, belief being prevalent that business not only will be better following election but prices will be high-

(*Concluded on Page* 1211)

Semifinished Steel Quiet

Lack of New Business Noted in All Districts—Billets and Slabs at $35.50, Valley, Fail To Attract Buyers

SEMIFINISHED STEEL PRICES, PAGE 1201

Pittsburgh, Nov. 4.—Inquiries for all forms of semifinished steel are scarce, and on that account there has been some price weakness, mainly in connection with billets and slabs. Prices on sheet bars are firm at $37, however, and specifications are coming in at a fairly active rate against contracts. Nothing new is appearing in prospective buying, although before the month is over this probably will develop. Occasionally a small order for billets is taken, and while some consumers have been unable to get prices below $37, others have developed a $36 level, and lately one concern here has gone to $35.50 on 4 x 4-inch rerolling billets and slabs, similar to the minimum prevailing in the Youngstown district. Forging billets were sold at $40.50, although some makers will not go below $41. One interest claims to be receiving specifications on $42 contracts. Wire rods are quoted at $45 to $46, with specifications fair, but new inquiries absent. Skelp is inactive, 1.90c to 2.00c being quoted.

Mill Prices Quoted

Philadelphia, Nov. 4.—Wire rods now usually are selling at prices equivalent to $45 to $46, base Pittsburgh, or $50.30 to $51.30 delivered Philadelphia. The market is confused, however, due to the appearance of some mill prices which appear to be lower than the above figures.

Sales of Billets Small

New York, Nov. 4.—Billet sales are restricted to small lots. The market is $35.50 to $36, Pittsburgh, for the rerolling quality and $40 to $41 for forging.

New Business at Standstill

Youngstown, O., Nov. 4.—New demand for semifinished steel is at a standstill. The bulk of the tonnage coming off the mill is in the form of sheet bars which continue to be purchased by consumers as needed. Some sheet bar specifications against contracts are received frequently but they lack volume. Sheet bar prices continue firm at $37, Youngstown, with inquiry lacking. Slabs and billets are in slow demand. Producers are quoting $35.50, Youngstown, on billets 4 x 4 and larger and slabs. Smaller billets are $37.

Some Specifications Issued

Cleveland, Nov. 4.—Specifications on contracts are being received by makers of semifinished material, but new business is lacking. No inquiries came out during the past week, and no sales were reported. The leading maker gives as its

prices $37.50, mill, on sheet bars, and $37 on billets and slabs. The latter price is applying on some tonnages of billets and slabs now moving to users.

Strip Users Find New Bases Change Map

STRIP PRICES, PAGE 1201

New York, Nov. 4.—Since the establishment of a Worcester base on cold-rolled strip steel, there has been much confusion and many complaints from consumers. The price of the leading maker at Worcester, is 4.15c base mill. On this basis consumers at Worcester could get their material at a switching charge of $5 a carload while consumers elsewhere must pay freight from Worcester. As a matter of fact, the situation has changed considerably and all kinds of prices are heard. Cold-rolled strip steel has been sold by independents as low at 3.65c, base Pittsburgh. In frequent instances 4.00c base mill has been made, with delivery by motor truck free of charge.

What a good many consumers would like is a flat delivered price for principal consuming points. This the Steel corporation subsidiaries could not grant, for the federal trade commission is as much opposed to flat deliveries as it is to the old Pittsburgh plus price, as it would cause buyers to pay freight charges which do not coincide with the actual rates from the mill to their works. The commission's order, however apparently did not apply to independents, and it is understood one independent in some cases has been quoting 4.35c, base delivered on cold-rolled strip steel. This quotation, inasmuch as sales have been made at so much lower prices, is interesting only because it includes delivery to various New England consuming points.

Pittsburgh Business Slackens

Pittsburgh, Nov. 4.—Business in hot and cold-rolled strip steel slackened somewhat last week. Specifications came in, however, in the regular way from a number of customers on both grades and were sufficiently numerous to maintain operations unchanged between 50 and 60 per cent of capacity. For one or two important makers here business has increased each of the past three months, October proving 15 to 25 per cent better than September. The lull is expected to be only temporary. Cold strips are firm at 4.00c. f.o.b. Pittsburgh district mills. On hot strips the price situation is unchanged at 2.25c to 2.50c.

Coal Rates Suspended

Washington, Nov. 4.—Operation of certain schedules proposing to increase the freight rates on pig iron in carloads from Chicago, Peoria, Springfield and related group points in Illinois, also St. Louis and Prairie du Chien, Wis., to destinations in Iowa territory, has been ordered suspended until March 1, next, by the interstate commerce commission. The proposed rates would raise the rate from Chicago to Cedar Rapids, Ia., 49 cents, and the rate from Springfield, Ill., to Cedar Rapids, 73 cents.

Coke Consumers Waiting

Tentative Inquiries Bringing Out Prices of $3.25 to $3.35 on Furnace Grade—Foundry Demand Also Slow

COKE PRICES, PAGE 1201

Pittsburgh, Nov. 4.—Several tentative inquiries have been out for Connellsville beehive coke for delivery in the first quarter but since producers are quoting $3.25 and even higher levels, some naming $3.35 for that period, action on these will be deferred. Users believe that they will have nothing to lose by waiting and that they may obtain a lower price by the end of this month or the first of next on their next quarter's fuel when the producers find that the market will not stand the higher figure. The Shenango Furnace Co. and one or two other blast furnace operators have been quietly sounding out the market. The Emporium Iron Co. is understood to have completed arrangements on its requirements of 5000 tons monthly for the remainder of the year at slightly above the $3 price. At present, the spot market continues quotable at $3 to $3.15, with several small lots moving. Medium sulphur and heating coke again are dragging. From $2.60 to $2.85 represents the spot market although up to $3 was obtained on some larger tonnages moved recently. No large inquiries now are before the trade from smelters although fair sized ones occasionally develop for coke for heating purposes. This demand has increased slightly during the colder weather in the past day or two but individually inquiries are small. Foundry fuel is moving slowly, single carload orders being received every day with an occasional 250 or 500-ton order. On rare occasions, orders are placed for 1000 tons or more. One or two such have been booked by producers of high grade brands for delivery over the first quarter and one for the first half of next year at $5.75 and $6 in gondola and box cars, respectively. Foundry fuel adaptable for use in brass foundries is being offered here today at $3.50 but this is not strictly standard. The regular market is quoted at $4 to $4.50. Even some of the $4 fuel is not standard selected 72-hour foundry coke, but sometimes comprises Monday's and Tuesday's drawings by machine.

Production of Connellsville coke for the week ended Oct. 25 was 96,440 tons, compared with 84,610 tons in the preceding week, according to the *Connellsville Courier*.

Stronger Sentiment Noted

New York, Nov. 4.—The market in foundry coke displays a rather firm tone here, but this tendency does not receive much impetus from current demand, which is of a scattered character and is not large in the aggregate. Some spot beehive foundry coke has been sold as low as $4.25, Connellsville, but this figure is not usual, and the market is $4.50 to $5.50, according to the brand. There is as yet practically no contracting for deliveries beyond Dec. 31. The quotation on by-product foundry coke continues $10.41 delivered at Newark and other Northern New Jersey consuming points.

Buying Small Lots

St. Louis, Nov. 3.—The demand for coke continues active, but buying is chiefly on a hand-to-mouth basis. The West and Southwest have been buying more heavily during the past two weeks, but the movement to those general sections is below normal for this time. Industrial users, particularly the water gas and bakery interests, have covered their requirements. Prices on all grades and sizes remain unchanged.

Southern Market Improves

Birmingham, Ala., Nov. 3.—Slight improvement again is noted in the coke market, and production is somewhat better. Quotations are firmer. Beehive and by-product foundry coke is selling at $4.50 to $5. Independent coke producers are making sales right along, the tonnage showing signs of increasing. Efforts are being made by producers to promote the domestic use of coke.

Moderate Activity at Cincinnati

Cincinnati, Nov. 4.—Aside from the purchase of 3000 tons of water gas coke by the Union Gas & Electric Co., Cincinnati, for December and January shipment, activity in the local coke market the past week was of small consequence. By-product manufacturers report a slowing down in sales, but say consumers with coke under contract are not holding up shipments and in some instances are anticipating quotas due during the next few weeks. Demand for foundry coke is fair, with relatively unimportant tonnages moving to the foundries in this district. Domestic coke sales while involving small tonnages represent a satisfactory volume of business. The Ashland By-Product Coke Co. has announced that the price of its foundry and domestic coke will remain unchanged for November shipment. The foundry grade is quoted at $6.50, Connellsville base, and the domestic at $5 ovens for egg and walnut and $4.50 for No. 2 nut. New River foundry coke is quoted at $8.50 to $9, ovens, and the Wise county grade at $4.50 to $5, ovens.

Re-elects Officers

Pittsburgh, Nov. 4.—Directors of the Pittsburgh Steel Co. all were re-elected at the annual meeting of the stockholders held here Oct. 28. The board then re-elected the following officers; D. P. Bennet, president; Emil Winter, Edward H. Bindley and C. E. Beeson, vice presidents; H. J. Miller, secretary, and Clayton Snyder treasurer.

Stack Breaks Record

During October, the Ironton, O., blast furnace of the Marting Iron & Steel Co. produced 11,035 tons of pig iron, and thereby established a new record output for itself. The average daily production was 356 tons. The furnace has a rated capacity of approximately 300 tons per day.

Higher Bar Price Likely

Expectation in All Markets That 2.10c, Pittsburgh, for Soft Steel Will Follow Soon—Western Makers Limit Tonnages

BAR PRICES, PAGE 1201

Chicago, Nov. 4.—Soft steel bar business has been coming out at a pace that leaves both leading makers little free capacity over the remainder of the year. One maker faces the problem of limiting specifications to contract obligations, as some interests are seeking almost double the tonnages their contracts call for. It is stated that 1925 delivery dates will prevail on substantially all bar business taken from now on. New business booked in October in the case of one maker, was the heaviest of any month in two years. In the Chicago district little business has been held back for release in event of a favorable election outcome. Although car builders and railroads have provided much of the business now on the books general merchant buying has been good. The soft steel bar price in the Chicago district is 2.00c, Chicago, with smaller business at a higher level and the general tendency upward.

Bar iron buying from all sources has been much improved. Some makers, while still on single-turn, are starting to build up a backlog, something missing from the bar iron industry for some months. The quotation is 2.10c to 2.15c, Chicago.

Backlogs of rail steel bar mills have lengthened slightly this week as a result of a good run of business. While 2.00c mill, or 2.03c, Chicago, can be done, the minimum of some makers is 2.10c, mill.

Further Activity Develops

Pittsburgh, Nov. 4.—Further orders for merchant steel bars have been placed because the impression appears to be spreading that an early advance will occur in heavier rolled steel products, taking bars to 2.10c. Most orders are at 2.00c although some lower figures were made on combination orders from structural shops and on large tonnage orders from railroad car shops. Numerous small orders below 500 tons are noted in the recent activity, including one or two involving 1000 tons or more.

Refined iron bar orders have been slightly more numerous during the past few weeks, October being better than September. Prices are unchanged at 2.90c to 4.50c.

Boston Demand Declines

Boston, Nov. 4.—Bar sales dropped appreciably during the past week. One of the leading sellers reports the total tonnage placed as 75 per cent of the previous week, and the quietness reported by other sellers is even more pronounced. Prices are soft despite attempts of one mill to hold to a level corresponding to 2.00c Pittsburgh. More and more sales are reported in New England at 2.265c delivered although over 500 tons have been entered at fully 2.365c, delivered.

New York Market Firm

New York, Nov. 4.—Steel bar buying has not shown much improvement during the past fortnight. There has been some business of a special character at 1.90c base Pittsburgh, but the usual market is firm at 2.00c. There are intimations by producers that the price shortly will be advanced to 2.10c base Pittsburgh but no indications of such an advance actually have been seen.

Early Advance Is Rumored

Philadelphia, Nov. 4.—Demand for steel bars is only fair at 1.90c base Pittsburgh the most often quoted market, with a range of 1.90c to 2.00c. There is some talk of an advance to 2.10c Pittsburgh but so far there are no indications of this price.

Tonnage Closed at 2.00c

Cleveland, Nov. 4.—Strength has been more pronounced in the steel bar situation the past week and the movement toward the establishment of a minimum equivalent to 2.00c, Pittsburgh, inaugurated some days previously, appears to have been successful. A round lot of tonnage was closed in the week at this price which represents 2.19c, delivered Cleveland, including at least two lots of 1500 tons each, one of 1000 tons and various others up to this latter amount. These tonnages all are for delivery by Jan. 1 as the mills are not inclined to go beyond that date at present prices. A few buyers, however, have been selling out the market for material after Jan. 1. Some mill offices in this district report their best bookings since January. An automobile spring manufacturer in this territory which was in the market in this territory for 12,000 tons of spring steel for delivery up to next July has closed only for its requirements up to the end of the year. It is reported that this is something less than 2000 tons. Hoops and bands continue at 2.40c to 2.50c, Pittsburgh basis and wide bands at 2.10c to 2.15c. It is reported that an advance particularly in the latter product is imminent.

Cold Finished Is Quieter

Pittsburgh, Nov. 4.—Cold-finished steel bars are quiet although the price remains firm at 2.70c f.o.b. Pittsburgh district mills. A lull has come in specifications but it is believed this is only temporary. Small lots occasionally are sold and for less than carload quantities 2.95c is the figure. The price of 2.75c, Cleveland and Worcester, Mass., on the part of the American Steel & Wire Co. applies to screw stock and does not include shafting. Operations are 40 to 50 per cent of capacity.

New Bolt, Nut, Rivet Demand Appears

NUT AND BOLT PRICES, PAGE 1266

Pittsburgh, Nov. 4.—Specifications on nut and bolt contracts are fair and a few new inquiries are coming out as a result of increased car orders placed recently. These are mostly for rivets and some shops recently figuring successfully on car inquiries already are inquiring for large lots of rivets. Prices on nuts and bolts are firm on the basis of 60 and 10 off for large machine bolts and while in connection with rivets some 2.50c quotations recently became available from one or two small producers, the majority are still quoting 2.60c and are taking contracts on that basis. Operation in nuts bolts and rivets are unchanged at about 40 per cent of capacity.

Prices Firm at Philadelphia

Philadelphia, Nov. 4.—Rivet prices continue firm with 2.60c, Pittsburgh, a minimum. Some business is going at 2.75c and even 2.90c, Pittsburgh. Bolt quotations are firm at 60 and 10 off for large machine bolts. One consumer recently tried to contract for first quarter delivery, but makers refused to book that far ahead.

Prices Are Firm

Cleveland, Nov. 4.—Bolt and nut prices are firm. Orders are not large but aggregate a fairly good volume of business. One large producer reports October business was the heaviest since last March and indications are that November will exceed this. Discounts continue to be based at Pittsburgh and Chicago.

There has been a slight letup in demand for rivets during the past few days but a good volume of buying is expected to follow the election. Prices are firm. Makers gradually are working around to quoting on a Cleveland basis, although Pittsburgh and Chicago also are named.

Pre-election Inertia Felt

Chicago, Nov. 4.—Makers of bolts and nuts have experienced the quietest week in several months and blame it on the election. All classes of users have contributed to this quiet. Production, however, has not suffered and specifications on third quarter contracts are being worked off at a good rate. Makers say prices are firm on the basis of 60 and 10 off for large machine bolts.

Hoop, Band Demand Fair

HOOP PRICES, PAGE 1201

Pittsburgh, Nov. 4.—Several makers report fair demand for hoop and band sizes of hot strips. No small part originates with automotive industries, with an occasional order from other manufacturers. One or two makers find business in narrow strips has fallen off lately but have hopes of an early revival. Quotations are unchanged, 2.40c, to to 2.50c being the usual figure on bands and 2.50c to 2.60c on hoops. Narrow hoops bring much higher prices.

Pig Iron Market Active

(*Concluded from Page* 1200)

Radiator Co.'s Tonawanda furnace. There are now 13 furnaces in the district making iron and the number may reach 15 before the end of this month. Sales last week are estimated to have exceeded 15,000 tons and possibly totaled 20,000 tons.

Inquiry Largest in Months

Cincinnati, Nov. 4.—Northern pig iron appears to be turning the corner. Melters are inquiring for their first quarter and first half year needs. Not in months has inquiry been so heavy and so far into the future. Sellers are firming up on their

ideas of prices. Several first quarter inquiries are said to approximate 5000 to 6000 tons. The Link-Belt Co. is in the market for 3000 tons of malleable iron for its Indianapolis plant. The Favorite Stove & Range Co., Piqua, O., wants 800 tons of northern and 400 tons of southern iron for first half, while the Globe Stove & Range Co., Kokomo, Ind., is inquiring for 1000 tons of northern iron. Sales the past week approximated 4000 tons of malleable and foundry iron. The Muncie Malleable Co. Muncie, Ind. took 1500 tons of malleable iron for first quarter and the Ross-Meehan Foundries Co. Chattanooga, Tenn., 1000 tons of the same grade. Other sales included 500 tons of foundry iron to the Peerless Foundry Co., Cincinnati, and 200 tons of the same grade to the Bardes Stove & Range Co., Cincinnati. The Wagner Mfg. Co., Sidney, O., is reported to have bought 400 tons of northern foundry iron and 100 tons of 6 to 7 per cent silvery iron for first quarter. Northern iron is firm at $20, Ironton.

Market Activity Intensified

Chicago, Nov. 4.—Selling of northern No. 2 foundry and malleable iron has been much more vigorous in the past week. Repeat orders for fourth quarter iron are numerous and melters are placing first quarter iron in a volume that indicates they are discounting the results of today's election. Last quarter iron generally is quoted at $20.50, furnace, and first quarter at $21. One seller has advanced to $21 for remainder of the year and first quarter.

Activity in low phosphorus is marked. A Milwaukee user has closed for 1000 tons, while inquiries include 500 tons from Chicago and 200 tons from Milwaukee. A Michigan melter is in the market for 1800 tons of first quarter No. 2 foundry. The 600-ton silvery inquiry from Kenosha, Wis., has been closed. Most spot business in northern iron is in the neighborhood of 200 tons. The melt of gray iron and malleable foundries seems to be advancing evenly. Charcoal iron holds at $26, furnace, or $29.04, delivered Chicago, with several sales of 100 tons. Southern iron sales are light. The range on Birmingham iron seems to be $17.50 to $18.

St. Louis Market Active

St. Louis, Nov. 4.—Sentiment in the pig iron market has improved during the past two weeks. There has been a good volume of purchasing, and inquiries pending total larger than for a number of months. Several important pig iron producers who serve this district have indicated they will advance their quotations. Reserve stock continue to dwindle. Sales reported during the past few days aggregate 11,500 tons,, of which 7500 tons of foundry iron was sold by the St. Louis Coke & Iron Co.

More Buying Expected

Birmingham, Ala., Nov. 3.—Pig iron selling in the Birmingham district is small lots mostly for local consumption. The aggregate still is abiut equal to the make with 15 furnaces on foundry iron. Quotations range from $17.50 to $18.50 in base furnace. The Alabama Co., is quoting $19 on machine-cast iron. No statement can be obtained as to the reported sale of 20,000 to 25,000 tons recently to one of the large cast iron pipe makers.

Plates Are Slightly Firmer

Stronger Tendency Noted in Pittsburgh and Eastern Districts—Inquiry for First Quarter Appears at Philadelphia

PLATE PRICES, PAGE 1201.

Pittsburgh, Nov. 4.—Gradual stiffening in plate quotations is apparent, and while the low figures have not disappeared entirely, there is a decided tendency to refrain from naming 1.80c or less. It is expected that soon 1.90c will be the minimum and 2.00c or higher the prevailing figure on regular lots. Inquiries for oil storage tank plates are scarce although more are current for barges. The Midland Barge Co., has received a contract for six steel barges from the Barrett Line, Cincinnati, involving about 1000 tons of plates. The five small and the 12 large barges for the Mississippi river commission still are pending. They involve approximately 2000 tons.

Eastern Market Firmer

New York, Nov. 4.—A firmer tone is shown in the plate market here. Efforts to place good tonnages of plates at 1.50c base Pittsburgh, have proved unavailing. The minimum now appears to be 1.55c, and it is difficult to get a price under 1.60c. Demand continues at about the same rate, probably around 50 per cent as far as the eastern mills are concerned Some large tonnages of car plates have been placed quietly with large Pittsburgh and Chicago mills.

Inquire For First Quarter Prices

Philadelphia, Nov. 4.—For the first time in months inquiries are appearing for plates for forward shipment. Two consumers are asking first quarter protection. Mills hesitate to go so far ahead. The market is firmer. One sale was closed in the past week at 1.50c, Pittsburgh, but 1.60c usually is minimum.

Buy Tonnage For Future

Cleveland, Nov. 4.—Users of plates are more disposed to make their current orders cover more than their immediate needs and this has resulted in a heavier total tonnage being placed. No especially large orders are represented although one lot of 1000 tons was negotiated. Action still is to be taken on a new ore freighter for the Cleveland-Cliffs Iron Co., requiring about 5000 tons. Plate prices are harder, some companies holding for a minimum of 1.85c, Pittsburgh or 2.04c, delivered Cleveland. However, in occasional instances where tonnages or extras are attractive, 1.80c, Pittsburgh, still is being done.

Car Builders Dominating

Chicago, Nov. 4.—Railroad and car builders have provided the bulk of the recent business in plates although one maker has booked about 3000 tons from tank fabricators in this district. An inquiry is current for 2500 tons for an oil storage project in Oklahoma. Production of plates is better than recent business would indicate. The price of plates has stiffened and 2.10c, Chicago, is now the quotation.

Ferroalloy Markets Are in Dull Condition

FERROALLOY PRICES, PAGE 1201

Shipments of the principal ferroalloys were heavier in October than in any month since March, making October the second best month of the year to date. New business is light, but indications are that a good specification against contracts will be experienced again in November. Consumers have done little figuring yet on 1925 contracts. Prices are unchanged throughout the list.

Pittsburgh Market Dull

Pittsburgh, Nov. 4.—Another dull week has been passed by the ferroalloys sellers. New inquiries for ferromanganese are slight although shipments continue at a high rate on contracts. Only one of two small lots have been disposed of but the $100 price remains firm. Some consumers of ferrotungsten are buying tungsten ore and having it converted at, they claim, a cost of 80 cents whereas they have to pay 85 cents, and 90 cents for the ferrotungsten. No demand exists for ferrovanadium or the other alloys but the quoted bases practically are unchanged. Some low figures are available in ferrosilicon, ranging around $70, freight allowed. The market is quoted at $70 to $75; no change has come to the speigeleisen market, demand still being slack. One sale to a Jeannette, Pa., user of a single carload of the 19 to 21 per cent grade was made at the $32, furnace, figure. On 1000-ton lots, undoubtedly $30 would be done. No inquiries now are out.

New Pipe Consolidated Company Formed

Birmingham, Ala., Nov. 4.—Formal filing of incorporation papers with the secretary of state of Alabama has been transacted by the Alabama Pipe Corp. which will operate a dozen or more soil pipe plants and one gas and water pipe company in this district. The authorized capitalization of the new corporation consists of $4,000,000 preferred and 80,000 shares common stock. T. E. Kilby, former governor of Alabama, is chairman of the board and W. P. Johnson is president of the new company which will make its headquarter in Anniston, Ala.

Organization of the Alabama Pipe Corp. is another step in the gradual consolidation of pipe plants in the South, and follows by several months the formation of the Gulf States Pipe Corp., which was incorporated in the latter part of July to handle the output of cast pipe plants in Birmingham and Knoxville, Tenn .

Concrete Buying Slackens

Approach of Winter Season Beginning To Be Reflected in Absence of Large Awards—1100 Tons Placed in Chicago for Sewer Work

REINFORCING BAR PRICES, PAGE 1201

Philadelphia, Nov. 4.—Competition among the leading sellers here is bringing out low prices on concrete reinforcing bars. In some instances 1.90c, Pittsburgh, is being done on mill shipments, while other low prices are impossible to figure out owing to involving combination mill and warehouse deliveries. The usual market on concrete bar mill shipments is 2.00c to 2.10c, Pittsburgh.

Market Shows Little Life

Pittsburgh, Nov. 4.—Quietness continues in the reinforcing concrete bar market which in this territory shows little life. Small inquiries occasionally come out but large tonnages appear to be held in abeyance. It is understood that the bars for the building of the Capstan Glass Co., South Connellsville, Pa., were bought in Cleveland. The price here is 2.00c, f.o.b. mill; 2.20c warehouse.

Demand Slow; Prices Steady

Buffalo, Nov. 4.—Reinforcing bar demand is quiet. Not much new work is proposed for this fall, although 500 tons will be required for two Buffalo schools and there are several warehouse jobs pending. Road work aggregating several hundred tons may be awarded within a few days but construction may be deferred until next spring. Prices are fairly steady, with quotations on bars from mills ranging from 2.00c to 2.10c, Pittsburgh, and on stock shipment material averaging 2.25c. Recent placements have been small.

Withdrawing Low Prices

Chicago, Nov. 4.—Unwillingness to quote under 2.10c, Chicago warehouse, is expressed by some reinforcing bar sellers here and an effort to bring the market up to 2.25c seems under way. Extreme competition has brought out some work for as low as 2.00c in the past few days. Some sellers have withdrawn low prices previously quoted. An unusually large volume of business is pending, considering the season, but it is mostly in large-sized jobs.

Small Tonnages Still Rule

Cincinnati, Nov. 4.—Relatively unimportant tonnages are for the most part involved in concrete bar transactions which have come to the closing point during the past week. The Ferro Concrete Construction Co. has purchased 400 tons from the Pollak Steel Co. for the new addition to the Alms hotel. Other awards run from 25 to 100 tons each, mostly for prompt shipment. The price on bars for shipment out of warehouse is 3.30c, base Cincinnati.

Small Tonnages More Active

Cleveland, Nov. 4.—More small tonnage lots of concrete reinforcing bars are being sold in this district, the aggregate being higher than for several weeks. Large awards continue lacking, only one 100-ton lot being placed here during the past week. Inquiries continue at a good rate, but are confined to small projects. New billet steel bars are being quoted 1.90c to 2.00c, Pittsburgh, with weakness less evident on small tonnages. Rail steel bars are untested at 1.90c, mill, with 1.85c possible on attractive business. Much of the tonnage moving from warehouses is going at 2.25c, Pittsburgh although 3.10c, Cleveland, still is being obtained by one dealer.

CONCRETE CONTRACTS PLACED

Awards this week	4,615 tons
Awards last week	2,580 tons
Awards two weeks ago	1,520 tons

1100 tons, sanitary district sewer, Chicago, placed by T. J. Forschner Contracting Co., Chicago, to Olney J. Dean & Co.
820 tons, section 3 South Water street improvement, Chicago, placed by Mid-Continent Construction Co., 6 North Michigan avenue, Chicago to Kalman Steel Co.
700 tons, Masonic temple, Chicago, to Olney J. Dean & Co. George A. Fuller Co., 140 South Dearborn street, Chicago, general contractor.
500 tons, apartment building in Chicago, to American System of Reinforcing.
400 tons, Ferro Concrete Construction Co. for addition to Alms hotel, Cincinnati, to Pollak Steel Co.
325 tons, John R. Thompson building, Chicago, to Concrete Steel Co. Alfred Alschuler, 28 East Jackson boulevard, Chicago, architect.
250 tons, St. Joseph's hospital, Ottuma, Iowa, to American System of Reinforcing.
160 tons, warehouse for Chicago, Civic Opera Co., Chicago, to Jos. T. Ryerson & Sons, Inc.
150 tons, addition to Peerless Portland Cement Co., Detroit, to Olney J. Dean & Co.
110 tons, Oak Park, Ill., high school, to Jos. T. Ryerson & Sons, Inc.
100 tons, two additional stories for Auditorium garage, Cleveland, to Paterson-Leitch Co. Craig-Curtis Co. that city architects.

CONCRETE CONTRACTS PENDING

1200 tons, American Falls reservoir, American Falls, Idaho; Utah Construction Co.'s bid recommended for acceptance.
600 tons, Lehigh & New Eng'and railroad warehouse, Bethlehem, Pa.; pending.
500 tons, two schools in Buffalo, N. Y.; pending.
Tonnage unstated, theater for Ure Building Corp Chicago. Plans being drawn by C. W. and G. L. Rapp, 190 North State street, Chicago.

Pipe Mills

Aggregate Tonnage Booked Is Fairly Large—Cast Demand Lags

PIPE PRICES, PAGE 1201 AND 1266

Pittsburgh, Nov. 4.—Large orders are rare in tubular products but a fair aggregate of orders is being booked by mills so that they are able to maintain operations at 60 to 70 per cent of capacity. Jobbers continue to keep their stocks well balanced and since the demand for standard full weight merchant pipe for building purposes is maintained at a high rate in practically every consuming center, this demand probably will continue. Many of the backlogs of business on the books of makers have been reduced by the heavy shipments of recent weeks, this being particularly true of line pipe. Nothing much in the way of new line pipe business is developing as a substitute. Prices are unchanged at the quoted levels, and all makers are gradually clearing up difficulties encountered in the establishment of new basing points.

Wrought iron pipe demand continues to show some improvement, October having proved to be a much better month from a booking standpoint than September and shipments being somewhat heavier as well.

Seamless boiler tubes and commercial tubing are unchanged and prices continue weak. Competition for existing business is exceedingly keen because there still is considerable unoccupied capacity. Automotive demand for seamless tubes keeps up to the usual market for this time of the year.

Demand Slower; Deliveries Easier

New York, Nov. 4.—Prices in cast iron pipe continue unchanged, although a reduction in the relatively near future would not prove surprising to some of the trade. Business has been affected somewhat by seasonal influences and deliveries on smaller sizes in particular are slowly becoming easier. On some sizes, shops are able to make deliveries from stock. Municipal demand is featureless.

Back to $42 Basis

Chicago, Nov. 4.—Bids opened by Detroit, Oct. 31, on 2000 tons of 6-inch cast iron pipe indicate a reversion to $42, base Birmingham. Bids from the United States, Lynchburg, American and Clow companies ranged from $49.90 to $51, delivered Detroit. The United States company bid on the whole tonnage, Clow on 1000 tons and American and Lynchburg on 500 tons each. Detroit opens bids, Nov. 12, on some large castings and a further tonnage of pipe. Private buying of cast iron pipe continues good, and is the mainstay of the present market. The delivered Chicago price on 6-inch pipe is $49.20 to $50.20, and on 4-inch pipe $53.20 to $54.20.

All Plants Fairly Busy

Birmingham, Ala., Nov. 3.—Cast iron pipe trade continues good, all plants in this district producing steadily. Shipments are good. Much encouragement has been occasioned by the report from the Pacific Coast to the effect that French and Belgian cast iron pipe which a year ago threatened to affect the Alabama business out there has not been satisfactory. Inquiries indicate expectation that winter buying will be good and that steady operations and shipments are assured. Quotations are firm.

CAST IRON PIPE PLACED

1500 tons, cast iron pipe for First avenue south project, Seattle, to United States Cast Iron Pipe & Foundry Co.
400 tons, Berwick, La., to National Cast Iron Pipe Co.
100 tons, Elmhurst, Ill., to United States Cast Iron Pipe & Foundry Co.
100 tons, Berwick, La., to the American Cast Iron Pipe Co.

CAST IRON PIPE PENDING

120 tons, 6-inch, Acton, Ont.; bids shortly.
100 tons, 4 and 8-inch, Durant, Okla.; bids shortly.
Tonnage unstated, large castings and pipe, Detroit; bids Nov. 12.

Imports More Ore

Philadelphia, Nov. 4.—Imports at the port of Philadelphia for the week ending Nov. 1, included 6109 tons of iron ore from Spain; 2000 tons of

manganese ore from British India and 1932 tons of pig iron from British India; 1522 tons of manganese ore from British West Africa; 300 tons of ferromanganese from England and 22 tons of scrap steel from England.

Wire Holds Steady

Orders Numerous And Prices Firm While Demand Shows Increase

WIRE PRICES, PAGE 1201

Pittsburgh, Nov. 4.—Manufacturing wire orders are plentiful and mail orders are fairly numerous although specifications are small. The market shows no weakness, prices f.o.b. mills here on wire and wire nails remaining 2.50c and 2.75c, respectively. While one large jobber is understood to be offering nails at 2.75c, base, indicating it is buying at a lower figure, this has no particular market significance since it is understood that some time ago this interest placed a 1000-car order to develop a preferential figure. Wire and nail mill operations average about 60 per cent of capacity.

Sales Nearly Double

Boston, Nov. 4.—Sales of wire and wire products showed far better totals during the past week than for any previous week in more than a month. The situation in New England resulting from the new basing points still is unsettled and the recent heavy orders are somewhat surprising even to the sellers. The price on plain wire is 2.865c delivered New England from points without the district, and for delivery from New England mills is 2.65c mill with local freight to destination.

Demand Better in East

New York, Nov. 4.—An improvement is reflected in wire and nail demand here. Prices are firm at 2.50c base Pittsburgh, for wire and 2.75c for nails. In some instances a lower mill price has been heard and this caused some confusion, but it was found the mill price was equivalent to the above Pittsburgh prices.

Expect An Early Gain

Chicago, Nov. 4.—Better demand for wire and wire products has come to most western makers in the past week and once the election suspense has been terminated further improvement is expected. Only current requirements are now being placed, as jobbers are permitting makers to carry the stocks, but these requirements appear to be expanding. Independent makers are hard pressed by the establishment of the Anderson, Ind., base by the leading maker at $1 over Pittsburgh-Cleveland. This presents a considerable handicap to independents seeking to compete for Indiana business. Price irregularities continue numerous. The leading makers delivered prices figure back to 2.60c, base Joliet and Waukegan, for plain wire and 2.85c for wire nails, for Western delivery.

Ziv Steel & Wire Co., Chicago, has increased its capital stock from $20,000 to $50,000.

Sheet Prices Are Firmer

Makers Anticipate Larger Volume of Business—Leading Interest's Shipments in October Best Since May

SHEET PRICES, PAGE 1201

Pittsburgh, Nov. 4.—A fair amount of activity continues to be noted in the sheet market. This applies principally to all grades, including full-finished automobile sheets. Large orders for galvanized car roof sheets and blue annealed sheets for steel box cars were placed during October, and despite the fact the majority of these were placed with the American Sheet & Tin Plate Co., that month was not so good as September in point of new business placed, or specifications. October for this interest, however, was the best month since last May as far as shipments on hot mill products are concerned. The price situation is practically unchanged with black sheets the weakest on the list. From 3.40c to 3.50c is quoted here, but in some other directions 3.35c f.o.b Pittsburgh district mills, has been the basis quoted. On galvanized, 4.50c to 4.60c has been the market for several weeks and while not so many shops are willing to go to the minimum figure, it still appears from time to time. The same ratio of difference appears on blue annealed, for while the majority of sales are on the 2.70c basis, as low as 2.60c occasionally is available. Full-finished is the firmest of all the sheet products at 4.60c. Books are not yet opened for the first quarter, but if any of the sheet grades advance for that period the full-finished grade probably will be first, and it is stated that in all probability other grades also will be higher. Sheet mill operations are averaging between 65 and 70 per cent of capacity.

Withdraw Low Prices

Philadelphia, Nov. 4.—Some large sheetmakers have withdrawn prices under 3.50c, Pittsburgh, on black sheets, and others are expected to follow. This grade, however, still is obtainable at 3.35, for delivery this year. Some first quarter inquiry is out, but no quotations are issued. Galvanized sheets now are 4.50c to 4.55c, Pittsburgh. Blue annealed are 2.60c to 2.70c, Pittsburgh.

Automobile sheet seconds now are bringing $65 to $70, Pittsburgh, net. This includes all charges.

Valley Market Quiet

Youngstown, O., Nov. 4.—Quietness in the sheet market has affected operating schedules. District sheet mill operation has receded from 64 to 52 per cent which, according to makers, is due largely to the uncertainty over the outcome of the election. Makers feel that better business is just ahead and plans are being laid to take advantage of it. This is one of the reasons for strength in the price situation at present. Within the past few weeks some mills were entering black tonnage at the equivalent of 3.40c, Pittsburgh, but quoted on a delivered basis, and galvanized at 4.50c. While some tonnage at these prices is on the books, the market presents more firmness and it is becoming increasingly difficult to line up black tonnage below 3.50c, galvanized below 4.60c and blue annealed from 2.60c to 2.70c, f.o.b. mill, with freight equalized. While some producers are entertaining tonnage for western shipment the bulk of the sales are negotiated with buyers in the local and eastern territories. Inquiry for common sheets, however, has receded sharply this week, and quietness in this direction is general throughout this district. Full finished sheets are in slightly better demand with some pickup noticed in the Chicago and Detroit districts. Quotations on this grade are firm at 4.60c, Pittsburgh.

Some Capacity Still Left

Chicago, Nov. 4.—Western sheet mills are operating practically at capacity but order books of sheet makers are not lengthening quite so rapidly as those of other finished steel producers. Consumers are buying amply for current needs. Prices are displaying strength, but they continue unchanged on the basis of 2.80c, base Gary and Indiana Harbor, for blue annealed, 3.60c for black and 4.70c for galvanized, for western delivery. Chicago delivered prices are $1 a ton higher.

Small Ore Tonnages Sold

ORE PRICES, PAGE 1266

Cleveland, Nov. 4.—Some small sales of Lake Superior iron ore have been closed recently at full market prices. Several inquiries are pending. These tonnages are for rounding out the season's requirements for some users who did not purchase sufficient quantities. Prices for next season are not being discussed by producers with headquarters here, although it is noted that some pig iron sellers are anticipating higher ore prices, in shaping their sales policies. The Lake Superior Iron Ore association reports the following statistics relating to ore consumption and balances on dock and at furnaces:

	Tons
Ore consumed in August	2,635,759
Ore consumed in September	2,927,102
Increase in September	291,343
Ore consumed in Sept., 1923	4,813,942
Ore at furnaces Oct. 1, 1924	31,593,002
Ore on Lake Erie docks Oct. 1, 1924	7,404,919
Total at furnaces and Lake Erie docks, Oct. 1, 1924	38,997,921
Total, Oct. 1, 1923	37,449,846

Shipments of ore from the Lake Superior district in October totaled 5,596,648 tons. The total for the season to Nov. 1 is 40,558,525 tons, 13,530,037 tons less than in the corresponding period of 1923.

Imports More Varied

Philadelphia, Nov. 4.—Imports at the port of Philadelphia for the week ending Nov. 1, included 6109 tons of iron ore from Spain; 2000 tons of manganese ore from British India and 1932 tons of pig iron from British India; 1522 tons of manganese ore from British West Africa; 300 tons of ferromanganese from England and 22 tons of scrap steel from England.

Shape Awards Still Large

Place 8500-ton Lot for New York Loft—Approximately 60,000 Tons Expected To Be Awarded in Chicago Within 10 Days

STRUCTURAL SHAPE PRICES, PAGE 1201

New York, Nov. 4.—Another active week has prevailed in the local structural market, the largest award involving 8500 tons for a Mandel loft building. Inquiry is well maintained. Specifications now before the trade involve a large tonnage, notwithstanding the heavy buying of the past two weeks. Shape prices are showing a strong upward tendency and it would not prove surprising to some interests in the trade if in the relatively near future, they would reach a minimum equivalent to 2.00c Pittsburgh. Fabricators appear less eager for work, some holding back in anticipation of a stronger market later. These calculations, of course, are based on the possibility of today's elections, supporting the present administration in Washington.

Demand Improves In Boston

Boston, Nov. 4.—Demand for structural shapes which gradually tapered off during October now shows signs of improvement. Leading fabricators report many new jobs being figured in their estimating departments, and while most of these call for small tonnages of shapes, the total is more favorable than in many weeks. The price is unchanged at 2.265c, delivered Boston, corresponding to 1.90c, Pittsburgh.

Buying Is Small; Prices Weak

Philadelphia, Nov. 4.—Structural shape buying is small and the market is unchanged at 1.70c to 1.80c, Pittsburgh. While some lots have gone recently at 1.65c, Pittsburgh, that price is exceptional. Some consumers are requesting mill prices. Quotations received from mills are understood to be 1.90c to 2.00c, base.

Awards Are Exceedingly Limited

Pittsburgh, Nov. 4.—Skimpy awards to fabricating shops were the rule for this entire district during the past week. Pre-election hesitancy was given as the cause. Several fabricating shops here report the receipt of orders for a few small jobs, each below 100 tons, but the McClintic-Marshall Co. received the contract for a bar shed and additions to the plant of the Newton Steel Co., Newton Falls, O., 300 tons. A gradual change is taking place in the market regarding quotations on material fabricated and erected. Shops are not so anxious to cut prices and show considerable tendency to stiffen. Plain material still continues to be quoted at 1.90c to 2.00c and the possibility is that that minimum shortly will disappear.

Inquiry Is Improving

Buffalo, Nov. 4.—The Bethlehem Steel Co., has placed its Lackawanna structural mill in operation. Inquiry is improving but Buffalo fabricators have taken no lots of more than 100 tons for several weeks. Warehouses report brisk demand for small lots.

Large Awards in Offing

Chicago, Nov. 4.—One maker of plain material estimates that fully 60,000 tons for spring delivery will be booked within 10 days. This results partially from a stiffening of the plain material quotation and the completion of financing on several large projects. The Eitel and the Jeweler's building and the South Water street and commission market projects, Chicago, are included in this tonnage. The Illinois Central railroad has come into the market for 7000 tons for shops at various points. October building permits in Chicago total $23,830,000 compared with $20,200,000 in September. Plain material has advanced and it is said that 2.10c, Chicago, is now the minimum.

Inquiries Are More Numerous

Cincinnati, O. Nov. 4.—Inquiries for structural shapes for various small jobs in this and nearby vicinities are more numerous, although large awards recently have been few. Fabricators report receipt of a fair number of 50 to 100-ton contracts and state that many of the larger projects are pending. The McClintic-Marshall Co. was the successful bidder on two girder spans of the Big Four railroad involving 125 tons. The Louisville & Nashville railroad is in the market for 700 tons of bridge work. Bids close Nov. 10. The price on plain shapes continues at 2.00c, base Pittsburgh.

Larger Tonnages Expected Active

Cleveland, Nov. 4.—Awards of structural shapes in this district during the past week were confined principally to small tonnages. The largest award was for 450 tons for a convent, the contract going to J. E. Moss Iron Works. One interest in this district booked 1000 tons of plain material for stock at 2.19c, Cleveland, equivalent to 2.00c, Pittsburgh, and quotations of 1.90c, Pittsburgh now are less in evidence. An upward tendency in fabricated prices also is noted. A better volume of business is expected to materialize within the next few weeks. Interest in the 7000-ton lot for the Ohio Bell Telephone Co. building centers around the plans which are to be issued shortly. One interest expects to sell more tonnage in the first 10 days of November than in the first 20 days of October, the latter period being better than the whole month of September.

STRUCTURAL CONTRACTS PLACED

Building awards this week	27,681 tons
Building awards last week	33,242 tons
Building awards two weeks ago	19,520 tons

8500 tons, Mandel loft building, 1 Park avenue, New York, to Hay Foundry & Iron Works.

6000 tons, subway work in Brooklyn, N. Y., through Oakdale Contracting Co., Flushing, L. I., N. Y., reported awarded American Bridge Co.

2943 tons, additions to Crane Co., Chicago, to Strobel Steel Construction Co. and Massillon Bridge & Structural Co.

2500 tons, instead of 1600 tons as previously reported for the loft building at Twenty-first street and Broadway, New York, to Taylor-Fichter Steel Construction Co.

1500 tons, loft building for Bijou Realty Co., 263 West Thirty-eighth street, New York, to A. E. Norton, Inc.

1000 tons, plates, six barges for the Barrett Line, Cincinnatti, to the Midland Barge Co.

900 tons, bridgework for New York Central railroad, suspension bridge, New York, United Construction Co., Albany, N. Y., erector, and American Bridge Co., fabricator.

800 tons, bridgework for Baltimore & Ohio railroad, 500 tons to McClintic-Marshall Co. and 300 tons to American Bridge Co.

500 tons, apartment, Fifth avenue, New York, to unnamed fabricator.

450 tons, Sisters of St. Joseph's convent, Cleveland, to J. E. Moss Iron Works, through John Grant Co., that city, general contractor.

450 tons, school No. 128, Brooklyn, N. Y., to Eastern Structural Steel Co., through J. F. Driscon, general contractor.

400 tons, coal handling equipment for the Columbia Power Co., Miami Fort station, near Cincinnati, to R. H. Beaumont Co.

350 tons, warehouse for Kieckhefer Container Co., Milwaukee, to Milwaukee Bridge Co.

324 tons, Texas highway bridge at Cameron, Tex., to the Wisconsin Bridge & Iron Co.

300 tons, bar shed and shop additions, Newton Steel Co., Newton Falls, O., to the McClintic-Marshall Co.

300 tons, building for the Co-Operative Building Corp., Hartford, Conn., to Levering & Garrigues Co.

300 tons, office building, 1812 Chestnut street, Philadelphia, to New York Shipbuilding Co., through Kober Construction Co., general contractor.

284 tons, building for Minnesota & Ontario Paper Co. at International Falls, Minn., to Minneapolis Steel & Machinery Co.

270 tons, theater and store building, Atlantic City, to McClintic-Marshall Co.

260 tons, St. Joseph's hospital, Reading, Pa., to McClintic-Marshall Co.

250 tons, high school East Boston, Mass., to Boston Structural Steel Co.

200 tons, schools at Springfield, Mass., to an independent fabricator there.

200 tons, additional work on the Hecht department store, Washington, D. C., to Lehigh Structural Steel Co.

160 tons, highway bridge, South Carolina, to independent fabricator there.

150 tons, bridge over Menantico creek, Millville, N. J., to McClintic-Marshall Co.

150 tons, Pennsylvania railroad bridge, to Bethlehem Steel Co.

150 tons, building for National Business Corp., New York, to National Bridge Works.

132 tons, warehouse building, Washington street, Boston, to New England Structural Co. W. A. & H. A. Root, general contractors.

125 tons, two girder spans for Big Four railroad, to McClintic-Marshall Co.

123 tons, foundry additions, Charlestown navy yard, Boston, to New England Structural Co. F. J. Low Co., general contractor.

110 tons high school, Enfield, Mass., to Eastern Bridge & Structural Co.

100 tons, coach shop for Rock Island railroad at Shawnee, Okla., to the Eggers-Schillo Co.

100 tons, dormitory, Exeter, N. H., to New Hampshire Structural Co.

STRUCTURAL CONTRACTS PENDING

7000 tons, various shops for Illinois Central railroad; bids in.

2500 tons, power station at Cahokia, Ill., for Union Electric Co., St. Louis; bids in.

2500 tons, tanks in Texas for un-named oil company; pending.

2500 tons, municipal stadium, East St. Louis; pending.

2000 tons, board of missions building, Addison, Ill.; bids in.

2000 tons, 17 barges, five small and twelve large, for the Missippi River commission; matter held in abeyance.

2000 tons, Seamen's Church institute, New York, specifications expected out in two weeks from Warren & Wetmore, 16 East Forty-seventh street, New York, architects.

1500 tons, buildings at Whiting, Ind., for Standard Oil Co. of Indiana; pending.

1000 tons, apartment, 515 Broadway, for Ninto Building Corp., 135 Broadway, New York; pending.

800 tons, apartment at West Seventy-ninth street, New York; F. S. Roth & Bro., Forty-second street, to issue specifications in about six weeks.

700 tons, Kerksch apartment, 67 East Fifty-sixth street, New York; Andrew T. Thomas, East Forty-seventh street, New York, architect.

700 tons, bridgework for Louisville & Nashville railroad; bids close Nov. 10.

600 tons, apartment Ninety-fourth street and Lexington avenue, New York, for Charles Myer, 31 Union Square; previously noted as contemplated, now active.

500 tons, building at Erie, Pa.; being bought by Webster Mfg. Co., Chicago; bids in.

500 tons, hotel, Dallas, Tex.; Alfred Bossom, 680 Fifth avenue, New York, architect.
425 tons, American Falls reservoir, American Falls, Idaho; Utah Construction Co.'s bids recommended for acceptance.
400 tons, plant addition for Mead-Morrison Mfg. Co., Boston; pending.
350 tons, apartment building, Beacon and Joy Sts., Boston, bids being taken.
300 tons, garage for Victor Mayper, 15 East Fortieth street, New York; pending.
275 tons, plant addition for B. F. Perkins Co. at Willimansett, Mass.; bids in.
240 tons, miscellaneous work for the Lackawanna railroad at Hoboken, N. J.; Phoenix Bridge Co. low on one portion, American Bridge Co. low on the other.
200 tons, stadium, Youngstown, O.; pending.
Tonnage unstated, theater for Ure Building Corp., Chicago; plans shortly by C. W. & G. L. Rapp, 190 North State street, Chicago.

Sales from Warehouses Continue Heavy

WAREHOUSE PRICES, PAGE 1258

New York, Nov. 4.—The local warehouse market is featureless, with trading routine and prices unchanged. An upward tendency in mill prices is manifested more clearly and this in conjunction with prospective better demand, may result in some advances in warehouse prices before the end of the month. Business is on an average with that of the past two months. Sales of shapes continue heavy.

Prices Cut at Philadelphia

Philadelphia, Nov. 4.—Price reductions again are in order in the local iron and steel warehouse markets. Jobbers here have cut quotations on hoops, 3/16-inch plates, cold-rolled rounds and shapes and concrete bars.

Demand Better at Buffalo

Buffalo, Nov. 4.—Warehouse business is on a broad scale, in comparison with average sales for the past six months. Orders are small individually but substantial in the aggregate. Demand for plates has increased materially within the past 10 days. Sheets and structural material also are active.

Raise and Suspend Short Haul Rates on Steel

Pittsburgh, Nov. 4.—Increase in the short haul freight rates on manufactured iron and steel from Pittsburgh to Youngstown, Pittsburgh to Wheeling and Pittsburgh to Johnstown from 9½ cents to 11 cents per 100 pounds became effective Nov. 1. Other short hauls have been increased accordingly. A similar increase in the short haul rates from Youngstown to Cleveland and between other points in the state of Ohio posted by the Baltimore & Ohio and other railroads which was scheduled to have gone into effect by Nov. 1, has been suspended until Dec. 1 by the state public utilities commission of Ohio. This suspension was granted upon the protest of the Otis Steel Co., Cleveland and various industrial companies in the Canton-Massillon district. Under this proposed change the rate from Youngstown to Cleveland also would have been increased from 9½ cents to 11 cents. This would have made the sum of the short haul rates from Pittsburgh to Cleveland 22 cents as against the present through rate of 19 cents.

Car Buying Still Active

Many Orders in Sight but Formal Inquiries Are Not Yet Out—Missouri Pacific Places 30,000 Tons of Rails—Accessory Demand Good

RAILROAD TRACK MATERIAL PRICES, PAGE 1201

New York, Nov. 4.—Placing of various car orders within the last few days of October brought the total awards in that month up to a good figure, although not as large as for September.

Buying of locomotives is featured by the placing of 50 Mikado type engines by the Wabash, with the American Locomotive Co. Another feature is the authorization by the Pennsylvania railroad to construct 50 switch engines in its shops at Altoona, Pa. Among other awards are two 3-cylinder Mountain type locomotives for the Lackawanna and one also of the 3-cylinder type, for the Southern Pacific, both orders going to the American Locomotive Co. This builder recently shipped five engines of the 3-cylinder type to Manchuria. The Southern Pacific is understood to be figuring on 18 additional locomotives of the 2-10-2-type.

Final distribution of the New York Central railroad's rail order for late fall and spring delivery, is as follows: Illinois Steel Co., 70,600 tons, Carnegie Steel Co., 17,000 tons, Bethlehem Steel Co., 80,200 tons, Inland Steel Co., 16,850 tons, making a total of 184,650 tons.

The Erie railroad award of 32,000 tons, as announced in last week's issue went as follows: 24,000 to the Illinois and Carnegie companies, 4000 tons to the Bethlehem Steel Co. and 4000 tons to the Inland Steel Co.

Foreign inquiries include 16,000 tons of rails for New Zealand and 11,000 tons for New South Wales, but neither of these tonnages is expected to be placed in this country.

Early Buying Expected

Boston, Nov. 4.—Preliminary estimates of 1925 rail requirements for New England roads are fully up to the specifications for 1924, and actual orders are expected to be placed during the month. One road has already entered the market with an inquiry for 13,000 tons.

Wabash Places 50 Locomotives

Philadelphia, Nov. 4.—Featuring the railroad market is the award of 50 locomotives by the Wabash railroad to the American Locomotive Co. The Northwestern road now is inquiring for 50 sets of boilers and fire boxes.

Small Orders More Numerous

Pittsburgh, Nov. 4.—More orders for light rails are coming through but these individually show no increase in tonnage. Coal mine operators are buying only sufficient to cover needs in sight. Occasionally an order will come through for a mixed carload of a 25-ton minimum load. From 1.80c to 1.85c is the usual market on billet-rolled light rails with rail-steel rails selling at $3 or $4 per ton lower.

Track fastenings continue to be ordered in fair sized lots although of late the majority of these have been placed in the Chicago district. One order for 13,000 kegs of spikes recently was placed here by the Louisville & Nashville railroad. Occasionally orders for tie plates come through at the 2.30c price.

Rail Orders Continue Active

Chicago, Nov. 4.—The Missouri Pacific railroad has placed 10,000 tons of rails each with the Illinois Steel Co. and the Inland Steel Co., 8000 tons with the Tennessee Coal, Iron & Railroad Co. and upwards of 2000 tons with the Colorado Fuel & Iron Co. Both the Santa Fe and the Burlington railroads are reported to be prospective rail buyers. The Chesapeake & Ohio railroad distribution of rails is definitely promised for this week. The Chicago, Milwaukee & St. Paul railroad division was 27,500 tons to the Illinois company and 7500 tons to the Inland company.

Track fastening business has been proportionally heavier this week than rail business, one maker having booked 15,000 kegs of spikes and bolts and 12,000 tons of angle bars. The Inland company booked 750 tons of angle bars with its Missouri Pacific rail order.

The Southern railway has placed 1410 cars with 3 makers. The Burlington is seeking repairs to 1000 gondolas. The Frisco has placed 400 steel underframes.

An advance in the price of light rails, now quoted at 1.80c to 1.85c, mill, is said to be in contemplation. Competition for track fastening business is keen and no advances here are looked for.

To Buy Rail Tonnage

Cleveland, Nov. 4.—A purchase of 20,000 tons of steel rails for 1925 delivery by the Nickel Plate railroad has been authorized but no inquiry yet has been issued. Recent inquiries for car repairs by the Baltimore & Ohio railroad calling for 15,000 tons of steel still are pending.

CAR ORDERS PLACED

Baldwin Locomotive Works, 100 flat cars for export, to the Gregg Car Co.
Central of New Jersey, 25 dump cars, to Magor Car Corp.
Frisco railroad, 400 steel underframes, to the Tennessee Coal, Iron & Railroad Co.
Great Northern railroad, 38 steel underframes, to the Siems-Stemble Co.
New York Central railroad, conversion of 200 cars for the Michigan Central, to the Illinois Car & Mfg. Co.
Southern Railway, 1060 additional box cars to the American Car & Foundry Co., 200 gondolas to the General-American Tank Car Corp. and 150 hoppers to the Kilby Car & Foundry Co.

CAR ORDERS PENDING

Chicago, Burlington & Quincy, rebuilding 1000 gondolas; pending.
Chicago & North Western, 3200 cars; bids in Nov. 13.
Western Fruit Express, 1200 steel underframes; pending.

Chicago Operation Steady

Chicago, Nov. 4.—Steel ingot operation in the Chicago district continues on the basis of 68 to 72 per cent. Blast furnace operations are unchanged with 14 of the 30 stacks of the leading makers active.

Nonferrous Metal Markets

Prices of the Week

	Copper—Electro delivered	Copper—Lake delivered	Copper—Casting refinery	Spot Tin, N. Y. Straits	Lead New York	Lead St. Louis East	St. Louis Zinc	Aluminum 98-99%	Antimony Spot	Nickel Ingot
Oct. 29	13.50	13.62½	13.00	52.62½	9.00	8.85	6.50	27.00	11.75	29.00
Oct. 30	13.50	13.62½	13.00	53.00	9.00	8.85	6.50	27.00	11.75	29.00
Oct. 31	13.50	13.62½	13.00	53.12½	9.00	8.70	6.50	27.00	11.87½	29.00
Nov. 3	13.62½	13.75	13.12½	53.50	9.00	8.70	6.57½	27.00	12.12½	29.00
Nov. 4—Holiday										

NEW YORK, Nov. 4.—A strong bull tendency, only partly repressed by pre-election caution, has been manifest in the metal markets the past week. Consumers have placed orders sparingly, preferring to wait for the national election results before making further extensive commitments. At the same time, the prospects for a favorable outcome of the elections has given rise among producers and sellers generally to a feeling that business will show the results of renewed confidence and therefore they have been equally cautious in their sales policies. Simultaneously, European interest in all metals has been expanding, with buying of copper and zinc. Further large inquiries are pending. Europe has bid lead prices still higher and has manipulated tin prices to new high levels since early spring. London metal prices have risen sharply since the Conservative victory in the British elections and the equivalents in our currency have risen even more sharply due to the steady rise in sterling exchange.

Copper—Electrolytic copper advanced ⅛ cent to 13.62½c, delivered Connecticut, Nov. 3, following a rise in export prices to that level, for metal alongside ship. Domestic business has been relatively light the past week, but producers are so heavily sold and are so confident in the market outlook that they have been willing to book only limited tonnages at the going prices.

Copper wire—An excellent business has been done in copper wire and cable on the advancing copper market, with a general distribution among all classes of consumers. Prices for bare wire have held in the open market at 15.25c to 15.37½c, base, mill; weatherproof, 16.75c to 17c; magnet, 17c to 17.25c.

Copper and brass rolled products—Brass mills have booked considerable tonnage on the rise in the market and some of them have enough tonnage on order to occupy them at a good rate to the end of the year. The price situation remains unsatisfactory to most mills in most lines as capacity remains well in excess of normal requirements. Base prices Nov. 3 were on a basis of 13.50c copper with every indication that a 13.75c market might be reached shortly, in which even another advance in products prices might be expected.

Zinc—Export sales of slab zinc in October are estimated at from 10,000 to 15,000 tons, while the volume of inquiry as this month opened was unabated. Inquiries Nov. 3 involved fully 2000 tons and a substantial business has been closed. Rising foreign prices have stimulated advances in this market, though domestic consumers held back the few days immediately before election. Prices have risen about $2 a ton, to around 6.60c, East St. Louis, for November shipment.

Prices Up and Buying Active Under Leadership of Markets in London

Lead—Lead prices have remained irregular, with the advancing tendency somewhat checked by the conservative policies of the larger sellers. Business was done with some buyers on the basis of 8.65c New York, for November shipment in the East, when other buyers paid other sellers up to 9c, New York. Similarly, middle western prices ranged from 8.40c to 8.70c, East St. Louis.

Tin—Tin statistics for October show the strongest position for this metal since the war. World visible supplies amounted to 18,971 tons, not including about 3000 held privately under the Bandoeng agreement. This is equal to about two months' deliveries, though not over half of the supplies could be made available in a month. In April, 1921, the world visible dropped to 15,670 tons, but at that time the Bandoeng pool held about 17,000 tons, making an actual total of about 32,000 tons. Prices have continued to rise, reaching close to 54c, a new high since the early spring movement.

Aluminum—The aluminum market is firm and unchanged. Virgin ingot 98 to 99 per cent is held at 27c and 99 per cent at 28c. Some consideration now is being given 1925 requirements, but actual commitments have been held up pending election results.

Mill Products

Base prices cents per pound, f.o.b. mill

SHEETS	
Copper, hot rolled	20.62½
High brass	17.37½
Zinc, ga. 9 to 18 (plates ½c less)	10.25
Lead, full sheets (cut ¼c more)	12.00
Aluminum, bright, 0 to 35 gage	37.50 to 92.00
SEAMLESS TUBES	
High brass	21.75
Copper	23.00
RODS	
High brass, round, ⅝ to 2½-inch	15.12½
Naval brass rods	17.87½
WIRE	
Copper	15.25 to 15.62½
High brass	17.87½

Old Metals

Dealers' buying prices cents per pound

HEAVY RED BRASS	
New York	8.25
Chicago	8.50
Cleveland	8.75 to 9.00
HEAVY YELLOW BRASS	
New York	6.50 to 6.75
Chicago	7.00
Cleveland	6.50
ZINC	
New York	3.50 to 3.75
Chicago, dross	4.50
Cleveland	3.50 to 3.75
HEAVY COPPER AND WIRE	
New York	10.75
Chicago	10.75
Cleveland	11.00
RED BRASS TURNINGS	
New York	7.25 to 7.50
Chicago	8.25
Cleveland	8.25 to 8.50
YELLOW BRASS TUBING	
Cleveland	6.50
NO. 1 BRASS ROD TURNINGS	
New York	7.00 to 7.25
Chicago	7.00 to 7.25
Cleveland	6.75 to 7.00
LIGHT COPPER	
New York	9.00 to 9.25
Chicago	9.00 to 9.25
Cleveland	9.00 to 9.25
LIGHT BRASS	
Chicago	6.25
Clippings, Chicago	8.25 to 8.85
ALUMINUM	
Borings, Cleveland	11.00
Old sheet, Cleveland	16.50 to 17.00
Clippings, Cleveland	20.00

Secondary Metals

Remelt aluminum No. 12	21.50 to 22.00
Brass ingot 85-5-5-5	11.50

Valley Operations Less

Youngstown, O., Nov. 4.—Steelworks operation in the Mahoning valley this week has lost some of the ground gained during the past month, due to slowing down of business pending the election. Sheet mill activity is at 52 per cent of capacity compared with 64 per cent a week ago and represents 62 mills. These are: 13 at the Youngstown Sheet & Tube Co., 12 at the Republic Iron & Steel Co., 10 at the Newton Steel Co., seven at the Trumbull Steel Co., six each at the Thomas Sheet Steel Co. and the Mahoning Valley Steel Co. and four each at the Waddell Steel Co. and the Sharon Steel Hoop Co.

Independent open-hearth operation decreased from 58 to 56 per cent of capacity since a week ago. The Youngstown Sheet & Tube Co. is charging 11 units, the Republic Iron & Steel Co. eight, the Trumbull Steel Co. six and the Sharon Steel Hoop Co. four or a total of 29 of the 52 units.

Miscellaneous operations include 16 hot tin and three hot strip mills at the Trumbull Steel Co.; four hot strip at the Sharon Steel Hoop Co.; five pipe, a skelp and four bar mills at the Republic Iron & Steel Co.; and seven pipe, one bar and one plate at the Youngstown Sheet & Tube Co. This company also added another blast furnace at its group of four stacks at East Youngstown making 100 per cent operations there in this connection. The Jeannette stack of this company at its Brier Hill division was blown out last week and its No. 1 stack there lighted. Twenty-one of the 45 blast furnaces in the Mahoning and Shenango valleys now are active.

Distillate Prices

Show Strength With Supplies Scarce—Naphthalene Active

New York, Nov. 4.—While trading in light oil distillates is fairly active, supplies are scarce. Consequently, prices are strong. Pure benzol may be quoted at 25 cents works in tank lots and 30 cents in drums; 90 per cent, 23 cents in tanks and 28 cents in drums; toluol, 26 cents in tanks and 31 cents in drums; solvent naphtha, 25 cents in tanks and 30 cents in drums; commercial xylol, 26 cents in tanks and 31 cents in drums.

The market on sulphate of ammonia for domestic account is unchanged at $2.65 works. The export market may be quoted nominally at $2.90 to $3.00 seaboard for material in double bags. There is little of this business on which to establish a market.

Contract business in naphthalene is improving with the market still at a premium of about ⅛ to ¼ cents higher than the spot market. Material for nearby is going at 6 cents works for flakes and 7 cents for balls. The market on less than carload lots for nearby shipment is 6½ cents works for flakes and 7½ cents for balls.

Phenol continues to hold at 27 cents local warehouse for spot and 25 cents works for future business.

Coke Oven By-Product

Spot*	
Per Gallon at Producers' Plants in Tank Lots	
Pure benzol	$0.25
Toluol	0.26
Solvent naphtha	0.25
Commercial xylol	0.26
Per Pound at Producers' Plants	
Phenol	0.27
Naphthalene flake	0.06
Naphthalene balls	0 07
Per 100 Pounds at Producers' Plants	
Sulphate of ammonia	$2.65
Contract	
Pure benzol	Nominal
Toluol	Nominal
Solvent naphtha	Nominal
Commercial xylol	Nominal
Per Pound at Producers' Plants	
Phenol	$0.25
Naphthalene flakes	Nominal
Naphthalene balls	Nominal

*Spot distillates are subject to shading.

Scrap Gains in Strength

(*Concluded from Page* 1202)

er. As a result they are not inclined to accept many of the proposals made by consumers on the ground that prices offered are not in keeping with firmness of the situation. However, users are not actively seeking tonnage of importance. Prices have been marked up a 50-cent average. Heavy melting steel is up 50 cents to $16 to $16.25; machine shop turnings, up 25 cents to $13.75 to $14; cast borings, to $14 to $14.50; hydraulic compressed sheets up 50 cents to $13.75 to $14; loose bundled sheets, up 25 cents to $12.50 to $12.75; No. 1 cast, up 50 cents to $18.25 to $18.75; heavy cast, up 25 cents to $12.50 to $13. The heavy melting steel market in the valley is $18 to $18.25.

Stronger at St. Louis

St. Louis, Nov. 3.—Iron and steel scrap has developed additional strength. There has been a fair volume of purchasing at somewhat better prices than two weeks ago. Rolling mill and foundry items and steel are in much better demand and general inquiry reflects more interest.

A number of inquiries have come out recently from other centers for certain grades, and prices mentioned have been slightly over levels prevailing here. Steel rails and car wheels are among the most active items, a round tonnage of the latter having been purchased by one of the leading interests here. The only railroad lists are 600 tons by the Frisco, 40,000 tons by the Pennsylvania and a blind list by the Big Four.

Southern Market Continues Dull

Birmingham, Ala., Nov. 3.—Iron and steel scrap in the Birmingham district continues quiet. Quotations are weak. Consumers are holding off buying near the year end so as not to have much stock on hand at inventory time. Heavy melting steel is quoted 50 cents a ton less and other changes have been made in prices.

Market Tone Is Brighter

Cincinnati, Nov. 4.—Demand for iron and steel scrap has not shown material improvement during the past week but the general tone of the market seems brighter. The activity in the valley and Pittsburgh districts, has added strength to the local situation. Dealers' have marked up their lists on an average of 50 cents a ton. Consumers still are holding to the policy of buying on a hand-to-mouth basis and the bulk of present orders is on spot account and seldom exceeds carload lots. Several inquiries of importance are out in the valley districts, but the prices offered still are too low to move any round tonnage from this market. Railroad offerings are increasing. The Pennsylvania railroad has a list involving 35,000 tons and the Big Four 5000 tons of miscellaneous scrap for disposal.

Takes Over Forge Plant

Chicago, Nov. 4.—G. H. Jones, president of the Hillside Fluor Spar Co., has taken over and recapitalized the Mid-West Forging Co., with works at Chicago Heights, which was under the direction of his son, Harold C. Jones, up to his death a few weeks ago.

Mr. Jones has become president of the Mid-West company and Jay L. Hench, who has been associated with Mr. Jones in the Hillside company and formerly represented the Lackawanna Steel Co. at Chicago, has become vice president. R. C. Rowan continues as general manager. Offices have been established at 1212 First National Bank building, Chicago. The works at Chicago Heights is operating at capacity day and night. The line of manufacture consists of spike and spring harrow teeth, cultivator springs, hay rake teeth, potato digger links, special light forgings and other iron and steel work.

Tin Plate Needs

Especially Large For Export—Higher Western Price Anticipated

TIN PLATE PRICES, PAGE 1201

Pittsburgh, Nov. 4.—Most of the business pending before the tin plate makers comprises plates for oil cans, either for direct export as tin plate or for re-export purposes as oil cans. Other buying is for filling-in purposes as needs arise. Several hundred thousand base boxes are involved, some of the larger Standard Oil interests having issued inquiries. Higher figures are being paid in the export market than a few weeks ago, consequently there has been some delay in placing these orders. The domestic price is unchanged at $5.50 per base box of 100 pounds, f.o.b. Pittsburgh district mills. While the price at Gary, Ind., is unchanged at $5.60, which is $5.65 delivered Chicago, one independent interest here is quoting $5.70 as Chicago base, or $2 per ton higher than the leading interest's figure at that point. It is a foregone conclusion that western consumers will have to pay higher figures during the first quarter since all the interests involved anticipate a huge consumption in tin plate for the first half of 1925. This will early fill up the western mills and make it necessary for needs to be supplied in Pittsburgh and other territories which will make the delivered prices considerably higher than now. Operations in this territory are practically unchanged around 55 or 60 per cent of capacity.

To Show Resources of Southern States

New York, Nov. 4.—Plans are maturing for a Southern industrial exposition here Jan. 19 to 31, inclusive, representative of virtually every phase of industrial activity in 13 principal states. The purpose is to bring to the attention of the East, the growth of the South in diversification of products. It will be known as the Southern exposition and will be held at the Grand Central Palace. In the lead in arranging the exposition are prominent men in the textile, iron and steel, power, railway transportation and other industries. William G. Serrine, Greenville, S. C., is president of the exposition. Joseph Hyde Pratt, Asheville, N. C., is vice president. Holmes B. Springs, Greenville, is secretary. Governor E. Lee Trinkle of Virginia is honorary president and the governors of other Southern states are honorary vice presidents.

Canadian Plants Merge

Horton Steel Co., Bridgeburg, Ont., has purchased the plant and goodwill of the Canadian Des Moines Steel Co., Chatham, Ont. It is expected that the Chatham plant will be shut down and the machinery and equipment transferred to Bridgeburg. Operations of the Chatham plant will be discontinued shortly. C. S. Scheeman is general manager of the Horton company. The two organizations had been close competitors in that district.

October Pig Iron Gains Sharply

Production Makes 400,000-Ton Increase Over September—Average Daily Rate Shows a Gain of 16 Per Cent—Active Stacks Total 182 on Oct. 31, This Being an Increase of Eight

PRODUCTION of coke and anthracite pig iron in October made the most striking improvement of any month during the three-month upward swing from the low point of last July. The gain of October over September was more than 400,000 tons over September, a figure which was double the increase of September over August. In spite of the continually increasing production, the October output still is 150,000 tons below the 2,619,986 tons of May. Blast furnace operations also continues to increase numerically, a net gain of 8 stacks being made during the month. On the last day of October, 182 furnaces were in blast, or but 5 less than the number blowing on May 31.

The October output of pig iron totaled 2,461,444 gross tons against 2,053,617 tons in September, the gain being 407,827 tons, or 19.8 per cent. The increase shown in the previous month was 9.5 per cent. On an average daily basis the October output represented a rate of 79,401 tons, which compared with the September rate of 68,454 tons, was an increase of 10,947 tons, or 16 per cent. The September rate showed a gain of 12.7 per cent over August. In October, the country was making iron at the rate of 29,000,000 tons annually.

Merchant iron made in October totaled 598,703 tons this being an increase of 80,686 tons over the production of the preceding month. On an average daily basis, the merchant production represented 19,313 tons per day, which, compared with the 17,267-ton rate of the month before, was an increase of 2046 tons. Steelworks or nonmerchant output aggregated 1,862,741 tons, making an improvement over the 1,535,600-ton output of September of 327,141 tons. This represented a rate of 60,088 tons per day and a gain of 8901 tons over the 51,187 tons of the previous month.

In October 12 furnaces were blown in and 4 blown out, making a net increase of 8 furnaces. Thus on the last day of the month 182 furnaces were in production as against 174 on Sept. 30. Of the merchant class 5 stacks were blown in and 1 blown out or banked, the net gain being 4 stacks. Of the nonmerchant or steelworks class 7 were blown in and 3 blown out or banked with a net gain of 4. Of the 182 furnaces active on the last day of the month, 48 were merchant and 134 were steelworks. The corresponding figures for September were 44 and 130. On Oct. 31 the Steel corporation was operating 65 furnaces as compared with 62 on Sept. 30 and 56 on Aug. 31.

Spiegeleisen made in October totaled 10,047 tons, this being a gain of 5014 tons over the 5033 tons of September. Ferromanganese, however, with a total of 6545 tons was a loss of 710 tons from the 7255 tons made during the preceding month.

Among the stacks blown in during the month were: In Ohio: Mattie, A. M. Byers Co.; Martins Ferry, Wheeling Steel Corp. In Pennsylvania: Clinton, Clinton Iron & Steel Co.; Vesta, E. J. Lavino & Co.; one Duquesne, and one Lucy, Carnegie Steel Co.; Cambria B, Bethlehem Steel Co. In New York: Susquehanna No. 4, Rogers, Brown Iron Co.; Niagara A, Tonawanda Iron Corp. In Illinois: South Works No. 1, Illinois Steel Co. In Colorado: Minnequa F, Colorado Fuel & Iron Co. In Minnesota: Zenith, Zenith Furnace Co.

Stacks blown out were: In Ohio: Jeanette, Youngstown Sheet & Tube Co.; Cherry Valley, M. A. Hanna Co. In Indiana: One Madeline, Inland Steel Co. In Colorado: Minnequa A, Colorado Fuel & Iron Co.

MONTHLY PRODUCTION

	1924	1923	1922
January	3,015,480	3,228,226	1,645,804
February	3,073,619	2,993,918	1,630,180
March	3,465,389	3,523,595	2,035,908
April	3,226,107	3,546,308	2,070,161
May	2,619,986	3,868,486	2,309,348
June	2,022,836	3,667,868	2,362,455
Total 1st half	17,423,417	20,828,401	12,053,856
July	1,783,457	2,684,677	2,403,030
August	1,882,986	3,448,886	1,810,665
September	2,053,617	3,117,526	2,024,008
October	2,461,444	3,142,642	2,629,655
November	.....	2,891,191	2,846,110
December	.....	2,912,527	3,083,520
Total 2nd half	.....	19,197,449	14,796,988
Grand total	25,604,921	40,025,850	26,850,844

AVERAGE DAILY PRODUCTION

	1924	1923	1922	1921	1920
Jan.	97,273	104,136	53,090	77,895	97,172
Feb.	105,987	106,925	58,220	68,906	102,904
Mar.	111,787	113,664	65,674	51,447	108,895
April	107,537	118,310	69,005	39,691	91,754
May	84,515	124,790	74,495	39,202	96,510
June	67,427	122,262	78,748	35,466	101,553
July	57,531	118,860	77,517	27,892	98,190
Aug.	60,741	111,254	58,408	30,802	101,468
Sept.	68,454	103,917	67,466	32,859	104,143
Oct.	79,401	101,375	84,827	39,821	106,075
Nov.	.....	96,373	94,870	47,165	97,836
Dec.	.....	93,952	99,468	52,992	87,105
Ave.	83,950	108,659	73,563	45,223	99,456

DIVISIONS OF PRODUCTION

1923	Merchant	Non-merchant	Spiegel	Ferromanganese	Other ferro
Jan.	713,186	2,515,040	12,056	19,358	952
Feb.	708,901	2,285,017	3,657	21,410	759
Mar.	767,219	2,756,376	13,832	20,730	236
April	795,558	2,750,750	7,440	20,810	670
May	909,726	2,958,760	9,533	19,568	892
June	899,102	2,768,766	18,184	19,717	874
July	906,496	2,784,181	12,876	26,493	776
Aug.	828,163	2,620,723	5,595	22,044	1,800
Sept.	734,754	2,382,772	4,478	23,206	1,860
Oct.	724,596	2,418,046	8,442	16,039	1,858
Nov.	726,686	2,164,505	16,783	14,839	3,259
Dec.	740,624	2,171,903	10,272	18,236	1,717
Tot'l	9,449,011	30,576,839	123,148	242,450	15,653
1924					
Jan.	707,710	2,307,770	7,948	19,735	...
Feb.	679,700	2,393,919	9,870	22,262	...
Mar.	712,321	2,753,068	13,794	22,350	...
Apr.	708,151	2,517,956	4,240	23,580	163
May	648,656	1,971,330	9,336	21,663	763
June	551,408	1,471,428	9,410	20,563	779
July	468,780	1,314,677	15,328	11,927	765
Aug.	465,059	1,417,927	8,010	7,654	760
Sept.	518,017	1,535,600	5,033	7,255	593
Oct.	598,703	1,862,741	10,047	6,545	822

OCTOBER PIG IRON

	No. of stacks	No in blast last day of month Oct.	Sept.	Total tonnage made Merchant	Nonmerchant	Totals—October	September
Pennsylvania	144	68	63	136,611	739,294	875,905	735,775
Ohio	78	37	37	106,973	467,422	574,395	507,967
Alabama	42	23	23	133,823	116,851	250,674	221,340
Virginia	19	2	2	4,468	.....	4,468	4,336
New York	27	13	11	70,967	73,469	144,436	101,043
New Jersey	4	0	0	.....	.....	.....	.....
Illinois	26	11	10	67,621	124,109	191,730	129,545
Colorado	5	2	2				
Indiana	16	10	11	27,969	266,641	294,610	241,604
Maryland	6	4	4				
Wisconsin	6	1	1				
Kentucky	7	0	0				
West Virginia	5	2	2	12,300	37,895	50,195	57,880
Tennessee	14	3	3				
Utah	1	1	1				
Georgia	2	0	0				
Texas	1	0	0				
Minnesota	3	1	0	30,211	27,406	57,617	51,246
Michigan	4	4	4				
Missouri	1	0	0				
Spiegel and ferro—all states	..	..	..	7,760	9,654	17,414	12,881
Totals	411	182	174	598,703	1,862,741	2,461,444	2,053,617

Coast Trade Holds Well

Some Slackening in Building and Employment but Signs of Revival Are Apparent—Alaskan Bridges Pending

SEATTLE, Nov. 1.—Business in iron and steel on the Pacific Coast is reasonably active, although buying is in small tonnages. Considerable oil field exploiting is planned in Washington. At least five companies are planning on drilling in the western portion of the state within the next few months. One company on the Olympic Peninsula has a well approaching completion. Oil interests from other sections are watching developments in Washington.

Construction is somewhat less marked with the advance of the season but in all large centers much work is being completed and plans are in the making for new projects.

Representatives of some mills are finding it difficult to adjust themselves to the new methods of fixing base prices. As a rule they are quoting base mill plus freight. In some instances this has resulted in delivered prices which have operated to eliminate plants in certain districts from active competition here.

The American Falls (Idaho) reservoir district board has recommended to the secretary of the interior that the Utah Construction Co.'s bid of $1,400,000 for a storage dam of 1,040,000 acre feet capacity be approved and accepted. This project involves about 1200 tons of reinforcing and 425 tons of structural steel.

Construction on the $150,000 concrete and steel office building, five stories, 100 x 120 feet for the Pacific Steamship Co., Seattle, has begun, the general contract being held by Albertson, Cornell Bros. & Walsh.

Pig Iron and Coke

The foundry business is somewhat better and operators are beginning to provide for future needs. Columbia, Utah, iron is being delivered here at $25.25 f.o.b. plant. For higher silicons the trade is using more or less of continental pig iron at $26.40 f.o.b. plant. Glengarnock and other high grades are stationary at $31 to $32, but buying is limited as users are well stocked. The coke situation is unchanged although there is a larger demand for Snoqualmie coke at $12.10 delivered here. Some plants are using local grades of domestic coke entirely while others are mixing them with imported or eastern domestic coke.

Bars, Plates and Shapes

There is little activity in bars. Jobbers are buying sparingly and dealers are not stocking. The local steelmaker is operating one 12-inch mill this week. The resale price of bars remains firm at 3.25c in this district, although 3.00c is still in force in the Portland district, due to local conditions. One local interest reports an inquiry for 1000 tons of plain rounds from China during the week. While the business has not been placed, this is the first interest shown by Chinese buyers in several months. San Francisco reports merchant bar prices in 100-ton lots or more cut from 2.50c to 2.45c by local mills.

Inquiry for plates is limited and only small tonnages are in sight. Repair and tank work call for small lots. Seattle has some work in prospect which will require plate tonnage but specifications are not yet prepared. Several mill representatives in this district find themselves out of the market entirely owing to prices named by their principals. The best quotations are reported at 2.25c.

While the shape market is not active several large jobs are to be awarded soon. Most interest attaches to the opening of bids next week for several bridges for the Alaska railway, involving 5000 tons. Two bridge jobs at Portland are to be awarded within the next 60 days if the necessary bonds are authorized. Work in fabricating shops is slowing down but the outlook for 1925 is better than for several years. The low price quoted in this market is 2.35c.

Finished Materials

Wholesale jobbers find business is holding up well and greater activity is expected next month. Sheets continue in best demand. Building materials and repair items also show an active turnover. At San Francisco demand for hoops and bands is limited. Prices are being quoted on a delivered basis now and while one large interest is naming a delivered price equivalent to 2.50c, base Pittsburgh, it is reported that some mills are asking 3.10c, c.i.f. equivalent to 2.35c, base, in large lots.

Old Materials

Interest in scrap is nominal. Foundries are buying cheaper grades of pig iron in lieu of No. 1 cast. The latter is selling in this market at $18 to $20 for best grades. Steel scrap is stationary at $8.50, the main buying interest having no difficulty in purchasing select material on this basis. There is little export demand. San Francisco reports cast iron scrap moving slowly, No. 1 cast being quoted $24 delivered.

The city of Seattle is in the market for 50,000 pounds of No. 6 soft drawn, triple braid, weatherproof solid copper wire, 600 brass trolley wheel castings of various sizes, 10 miles of 2/0 hard drawn round copper trolley wire in one mile reels, one No. 40 Excelsior 96-inch double geared bending and flanging machine and for one set of 60-inch Niagara forming rolls arranged for power drive with capacity for forming 12-gage iron.

The Savage Arms Corp., New York, earned $163,182 during the third quarter of this year. This compares with net earnings of $383,968, in the preceding quarter and with $67,099 in the first quarter of 1924.

Malleable Castings Output Still on Upgrade

Washington, Nov. 4.—Production of malleable castings still is on the upgrade, September's tonnage being 41,507, as compared with 36,727 in August and 31,159 tons in July, according to reports of the department of commerce. Operations were at 36.9 per cent of capacity in September, as compared with 32.6 per cent in August. Following is a comparison of production, bookings and operating rate since May 1923:

	Total tons produced	Per cent of capacity	Total tons booked	Monthly capacity
May	64,726	71	52,898	91,174
June	65,168	67.7	42,067	96,240
July	57,881	58.9	41,723	98,241
August	68,069	66.0	39,830	103,068
September	60,930	59.9	38,636	101,750
October	62,238	59.9	48,621	103,837
November	52,727	49.1	37,231	107,350
December	49,724	46.5	45,012	106,825
1924				
January	64,379	58.6	73,964	109,798
February	66,637	62.0	62,652	107,551
March	72,807	66.5	60,326	109,414
April	58,634	53.7	45,955	109,131
May	49,814	45.6	29,741	109,173
June	33,876	31.2	22,880	108,520
July	31,159	28.4	30,200	109,855
August	36,727	32.6	34,627	112,496
September	41,507	36.9	48,729	112,349

Locomotive Orders Drop

Washington, Nov. 4.—Total shipments of locomotives in September declined 35 from the month preceding, with a total of 104 as compared with 139 in August, according to reports to the department of commerce. Domestic shipments totaled 79, compared with 121 in August while domestic unfilled orders were 386 as compared with 361 in August. Shipments of locomotives in September 1923 totaled 335 while domestic orders that month were 313. Following is a comparison of orders and shipments:

Year and month	Shipments—Total	Shipments—Domes.	Unfilled orders—Total	Unfilled orders—Domes.
1920 monthly ave.	199	110	1,323	894
1921 monthly ave.	112	69	337	206
1922 monthly ave.	106	88	889	791
1923 monthly ave.	266	249	1,592	1,513
1924				
January	151	147	376	344
February	99	92	499	466
March	132	128	534	494
April	73	63	640	586
May	111	93	643	589
June	145	134	531	462
July	140	130	483	416
August	139	121	361	306
September	104	79	386	333

The Central Steel Co., Massillon, O., reports a net income of $636,765 for the September quarter after taxes, interest and depreciation, but before federal taxes. The net income for the nine months totaled $2,652,372.

British Vote Revives Industry

Increase of Buying in Iron and Steel Follows Election—Foreign Steel Still Coming In, Pig Iron Imported from France—Belgian State Railways Place 75,000 Tons of Rails with Domestic Mills

Iron Trade Review Staff Cable

European Headquarters,
IRON TRADE REVIEW,
2-3 Caxton House, Westminster, S. W.1

LONDON, Nov. 4.—With the British conservative party dominating, as a result of the recent election, there is an uplifting trend in industry. A revival of buying is noted in the iron and steel markets. Business prospects are brighter.

German interests have captured an important order for bridge steel and railroad accessories in Great Britain. British warehouses are buying Belgian steel. English users are purchasing Belgian billets at £5 6s ($24.06), delivered. The tin plate business is improving. South Wales manufacturers are selling good tonnages to France, Spain, Italy and Holland.

The Belgian state railways have closed for 75,000 tons of rails with domestic mills. Brussels reports heavy buying of steel by the Germans. German exports for September show a decrease from the preceding month, according to a dispatch from Berlin. Paris reports that French producers are selling pig iron to England, Switzerland and Italy, and steel to southern Germany.

British Pin Hope of Business on Election

European Staff Special

Office of IRON TRADE REVIEW,
Prince's Chambers, Corporation St.

Birmingham, Eng., Oct. 25.—Keen interest of the iron and steel trades in the election has taken a number of heads of the trade from their business, and in view of the industrial interests at stake they consider this absence justified. The slight improvement is not altogether unconnected with the hope that the labor party may be defeated and that business men may then get a chance.

The latest statistics give no ground for satisfaction, September output of pig iron being 569,200 tons against 588,900 tons in August and the lowest output for a year. The total of 170 furnaces in blast at the end of September is the lowest since December 1922. There is no news of further stoppages, but output is still excessive, nearly all the Barrow furnaces, for example, putting iron into stock. Only eleven are at work in that district, as against the prewar normal of 25. Much satisfaction is expressed at the little revived buying from America, the effect of which has already been reported here, through the IRON TRADE REVIEW cable recording an increase of $5 in the American import price of ferromanganese. All the British buyers of West Coast iron are taking smaller quantities than usual. At present, No. 3 G.M.B. is £4 ($17.92) and East Coast hematite is somewhat cheaper at £47s ($19.48). In spite of the stoppage of three furnaces of this class the output is excessive, and some stocking of products is reported.

Almost the only buying on the Birmingham exchange at the quarterly meeting was in pig iron for which Northampton makers are still disposed to cut prices. Orders were taken at £3 17s 6d ($14.36) for Northampton at the furnaces. The only order of importance booked this week is by Dorman Long & Co. for 15,000 tons of steel plates.

The slight improvement in structural steel has been maintained and in view of improving inquiries from home railways who are inviting tenders for engine sheds, dock sheds and other depot equipment, engineers are busy on tenders and look forward to more activity.

Sterling $4.48

Much publicity has been given to the reduction of 10s ($2.24) per ton by Scotch and English steelmakers in joists and sections. But this is largely illusory and is for the most part an attempt to bring the nominal price a little nearer to the selling figure. For some time past £10 ($44.80) has been the nominal figure, but sales have been at £9 10s ($42.56) or under. Quotations issued to engineers are on the £9 5s ($41.44) basis, and for an attractive tonnage with prompt specification £9 2s 6d ($40.88) might be accepted. Continental joists are offered here at £6 17s 6d ($30.80) delivered and Belgian billets are selling freely at £6 ($26.88) to £6 5s ($28.00) against the English price of £7 10s ($33.60). Some English steel works want 5s ($21.12) to 10s ($2.24) above this figure.

An important branch of Belgian competition is the sale of finished steel bars at £7 5s ($32.48) f.o.b. Antwerp of which large quantities are bought by British merchants for shipment to foreign destinations. The Staffordshire iron trade is severely depressed except the best iron section in which the mills are busy. The output, however, is a small proportion of the Black Country's capacity in finished iron generally. No. 3 iron for nut and bolt making is cheaper at £7 10s ($33.60) against the Staffordshire price of £12 ($53.76). But the users have such large stocks, delivered in the summer from Antwerp, that even the low price does not tempt them to buy.

One active department is that of cold rolled strip extensively used for motor and motor cycle building, but in this line competition is severe, Germany gradually getting a good foothold in the British market. A number of the builders of railway vehicles are taking fair quantities of Staffordshire iron for underframes and other purposes in which this material is preferred to steel.

Tin plate is the subject of a fair number of inquiries although new business hangs fire a little. Uncertainty has developed as to tin values, following a slight downward reaction. But the market appears to be steadying and the price of tin plate continues at £1 3s 6d ($5.26) except for some shading by merchants in isolated cases. A few orders have been booked for home deliveries in November and December. Some prominence has been given to the arrival of about 20,000 boxes of tin plate from America but inquiries by Welsh makers have satisfied them that this is due to special circumstances, and is not to be taken as an indication of American competition in this country.

Tin plate bars are unchanged at £8 12s 6d per ton ($38.64) subject to the usual rebate of 7s 6d ($1.68) the Welsh mills however are taking advantage of the cheap foreign steel, one estimate being that the deliveries at Swansea and Newport are still up to 10,000 tons per week, most of which is locally utilizd.

British Iron Exports Up

European Staff Special

Birmingham, Eng. Oct. 25.—Official returns of exports of iron and steel from Middlesbrough for September show total pig iron exports of 17,841 tons against 11,464 tons in August. The total sent coastwise was 14,148 tons. Purchases on home account show a marked reduction, the Scottish ports taking only 10,020 tons against 18,501

Current Iron and Steel Prices of Europe

Prices Converted into Dollars at Rates of Exchange, November 3

	British Gross Tons U. K. Ports		*French* Metric Tons Channel Ports		*Belgian and Luxemburg* Metric Tons Channel Ports		*German* Metric Tons Rotterdam or North Sea Ports	
Export Prices f. o. b. Ship at Port of Despatch—By Cable	£ s d			France		France	£ s d	
PIG IRON								
Foundry No. 3, Silicon 2.50-3.00	$18.16	4 0 0*	$15.98	305	$16.15	335	$21.34	4 14 0
Basic	17.59	3 17 6	16.24	310	16.15	335	23.84	5 5 0
Basic-bessemer	20.43	4 10 0†	15.98	305	14.94	310	21.34	4 14 0
Hematite, Phosphorus 0.02-0.05	19.75	4 7 0	21.48	410	.....	....	26.11	5 15 0
SEMIFINISHED STEEL								
Billets	$30.65	6 15 0	$22.27	425	$22.41	465	$23.15	5 2 0
Wire rods	49.94	11 0 0	28.30	540	27.47	570	27.69	6 2 0
FINISHED STEEL								
Standard rails	$38.59	8 10 0	$26.72	510	$28.92	600	$28.38	6 5 0
Merchant bars	1.72c	8 10 0	1.13c	475	1.12c	510	1.15c	5 12 0
Structural shapes	1.62c	8 0 0	1.13c	475	1.10c	500	1.13c	5 10 0
Plates, ship, bridge and tank	1.77c	8 15 0	1.69c	710	1.34c	610	1.38c	6 15 0
Sheets, black, 24 gage	2.53c	12 10 0	2.86c	1,200	2.57c	1,175	2.46c	12 0 0
Sheets, galvanized, 24 gage, corrugated	3.55c	17 10 0	4.11c	1,725	4.82c	2,200	4.61c	22 10 0
Bands and strips	2.23c	11 0 0	1.49c	710	1.53c	700	1.67c	8 3 0
Plain wire, base	2.33c	11 10 0	2.19c	920	1.81c	825	1.86c	9 2 0
Galvanized wire, base	3.04c	15 0 0	2.60c	1,220	2.35c	1,075	2.15c	10 10 0
Wire nails, base	2.94c	14 10 0	2.38c	1,000	1.81c	825	2.20c	10 15 0
Tin plate, base box 108 pounds	$5.33	1 3 6	.....	....	.....	....	$6.36	1 8 0

Domestic Prices at Works or Furnace—Last Reported							Renten Marks
Foundry No. 3 Pig Iron, Silicon 2.50—3.00	$18.16	4 0 0	$15.46	295(2)	$16.63	345	$20.24	88
Basic pig iron	17.59	3 17 6	15.46	295(1)	15.67	325	22.54	98
Furnace coke	3.86	0 17 0	7.86	150	6.27	130	5.32	24
Billets	30.65	6 15 0	22.01	420	22.65	470	23.00	100
Standard rails	1.72c	8 10 0	1.07c	450	1.37c	625	1.25c	120
Merchant bars	1.77c	8 15 0	1.21c	510	1.14c	520	1.16c	111
Shapes	1.77c	8 15 0	1.15c	485	1.13c	515	1.14c	109
Plates, ship, bridge and tank	1.87c	9 5 0	1.69c	710	1.35c	615	1.33c	128
Sheets, black, 24 gage	2.84c	14 0 0	2.90c	1,200	2.63c	1,200	2.24c	215
Sheets, galvanized 24 gage, corrugated	3.65c	18 0 0	4.21c	1,770	4.87c	2,225	4.54c	435
Plain wire	2.33c	11 10 0	2.23c	935	1.92c	875	1.67c	160
Bands and Strips	2.33c	11 10 0	1.71c	720	1.61c	735	1.51c	145

*Middlesbrough; †Scotch foundry iron; (1) Basic-bessemer; (2) Longwy. British export furnace coke £0 17s 0d ($3.86) f. o. b. Ferromanganese, £13 10s 0d ($61.29) f. o. b. The equivalent prices in American currency are in dollars per ton for pig iron, coke, semifinished steel and rails; finished steel is quoted in cents per pound and tin plate in dollars per box. British quotations are for basic open-hearth steel; French, Belgian, Luxemburg, and German are for basic-bessemer steel.

tons in August. Foreign shipments compare with 11,464 tons in August. The largest customer was Belgium, taking 3500 tons; other buyers were Denmark 2712 tons, Germany 2045 tons, Italy 130 tons and Sweden 1100 tons. New South Wales appears to be an increasing customer taking 1020 tons. No sales were made to America. France bought 1935 tons.

There was a sharp falling off in manufactured iron and steel. Foreign customers took 43,133 tons as compared with 52,557 tons in August. The Indian trade is once more prominent, shipments totalling 9933 tons. Germany was a buyer of 1065 tons. Natal 3644 tons and Victoria, Australia 2903 tons. About 40 other countries received the remainder. There are now 42 blast furnaces in operation on the Northeast Coast, a reduction of one for the month and of seven compared with January.

Germans Broaden Sale of Export Steel

European Staff Special

BERLIN, Oct. 25—An order for 8500 tons of rails has been taken by Krupps for the Swedish Ostkustbanans Aktiebolaget. This order which is valued at about 1,000,000 Swedish crowns ($266,200) is to be delivered via Rotterdam next spring. Another large order for rails for the Austrian railroads is on the market and it is expected it will go to German works since the Austrian competitor, the Alpine Montan Co., is quoting a higher price. Fair tonnages of railroad material have been sold to the Balkan states and to Border states including 20 railroad cars to Roumania on reparations account and further deliveries of this kind are expected. Wire nails have been sold to South Africa at £10 3s 4d per metric ton ($45.25) f.o.b. northern sea-ports and small parcels have been sold to India and Japan. A fair tonnage of barbed wire has been shipped to South Africa at £16 17s ($75.75). There is good inquiry from the Balkan states for hardware. In this line German manufacturers are endeavoring to open a market in Angora.

In the home market prices are declining as output exceeds consumption. The German iron and steel output at present is estimated about 70 per cent of capacity, while mechanical construction plants are working at only 40 per cent and shipyards at 25 to 30 per cent. The union of bridge-builders which in prewar times sold about 400,000 tons a year sold only 96,000 tons during the year ended June 30, 1924. However, home business is gradually increasing and turnovers are growing although prices are not remunerative.

Reports as to the establishment of a steel syndicate are more numerous and it is said a project orginating from the Thyssen combine has obtained the assent of about 90 per cent of the larger producers. To begin with, an attempt at organising a rail syndicate is anticipated as the experience gained in prewar times during the existence of the international rail syndicate would make the establishment of such an organization easier. The formation of a beam selling syndicate would be more difficult and it is said a syndicate for the sales of bars and wire products would meet little success. However, these plans will take long to crystalize and depend greatly on the outcome of commercial treaties now being negotiated between Germany and foreign countries. The Kattowizer mining company is working its forces on short time.

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Business Regains Equilibrium

ELECTION psychology as it pertains to business is a peculiar thing. Though the time-honored delusion that presidential years are bound to be periods of poor business, long since has been discarded by most people, the sentimental situation this year has been more like some of the old fashioned campaigns of the past. Business on several occasions in recent months has shown genuine stage fright at the display of vociferous radicalism. Not since 1896, perhaps, has it had anything of similar character or importance to face at election time.

After the nominations in the summer, business began to revive. Later it sustained a decided chill and went into temporary seclusion. Now it is venturing forth again emboldened and confident. Revived buying for the future has appeared the past week on all sides and on a magnitude signifying full expectation of a highly satisfactory result of the election. Veteran pig iron men say they cannot recall in their experience so vigorous a buying movement starting on the eve of a national election.

History shows that during the past 25 years presidential years have been better than the average in the iron and steel industry. The good years, relatively speaking, were 1920, 1916, a war year, and 1912 and 1900; 1908 was a genuinely poor year and 1904 a fair period. At the present outlook, 1924 from a production standpoint, also will measure up considerably above the average of the past five years.

Urges Fabrication by Welding

WELDING, both by the electric and gas methods, has reached a point in its development where it is considered reliable, efficient and economic for certain classes of work, but for the fabrication of structural steel, its use remains of questionable application. This was most clearly and forcefully brought out by papers and discussion at the annual convention of the American Welding society at Cleveland last week. Engineers are convinced not only that riveted joints should be replaced by welded connections but that an appreciable saving in steel will result, since lighter sections without rivet holes will give the same strength. The difficulty comes however, in their inability to give visible evidence that sound welds have been made.

Upon this one point depends the future development of welding in structural steel fabrication. Regardless of how satisfactory laboratory tests of welds may prove, inspectors will not accept the method for structural application until they are convinced that work in the field is equally as reliable. At the present time there is no known method, other than destructive tests, for determining the character of welds produced. It was pointed out at the convention that engineers know what rivets and riveted joints will do under load but until this same information is available for welds, their endorsement will be lacking.

Fabricators are interested in any reliable method that will permit the erection of steel at lower cost. Proponents of welding believe they have a method that will produce this saving. Therefore, it seems logical that the next step should be for fabricators and welders to co-operate with each other in conducting tests and working out inspection methods to satisfy both parties. Work up to this point has been done independently. With both elements meeting on common ground and interested in securing results of advantage to both, advancement should be much more rapid.

Bares Government Ownership Folly

FEW who heard the recent address of Secretary of Commerce Hoover answering the government ownership propagandists could help but be convinced by the soundness of his argument and his thorough exposition of this subject. Instead of using demagogic phrases of theory, Mr. Hoover substantiated his arguments with an array of logical facts. Aside from some of the smaller European countries, who put some of their public utilities under state control as war measures, no country has tried government ownership, with the exception of soviet Russia. These smaller nations that have tried it did so at great loss.

If the United States would pile its $40,000,000,000 of public utility business and the 2,700,000 employes upon the government, either the 530 members of congress or the hundreds of members of state leg-

islatures would become their boards of directors, or, as it has been claimed, these great businesses would be placed in the hands of commissions or government corporations, "somehow free from the dead hand of bureaucracy," Mr. Hoover pointed out. No legislative or quasi-legislative body of state or nation could give the time or the knowledge to intelligent management of such tremendous economic undertakings.

Whether in operating a railroad or any other public utility, no congress or state legislature, acting as a board of directors, could avoid many disastrous problems. The process to standardize these industries, built up by private initiative, also would have to standardize wages. There would be far less recourse on the part of the employe under government ownership than under private control as at present.

It is pointed out that government ownership of railroads could come only through receiverships for the greater part of the country's railway mileage. If public utilities are to be wrecked for the sake of such ownership, employes also must prepare themselves for the storm that inevitably would follow. A compilation recently completed by an agricultural publication shows that under government ownership a flat increase in taxation from 7 to more than 50 per cent would follow in agricultural counties.

Secretary Hoover aptly expressed government ownership as the negation of progress rather than "progressivism." The address of the secretary should be given wide distribution, not only for the argument presented, but for the remarkable array of facts on this heretofore much abused subject.

Traffic Record Marks Recovery

DURING the week ended Oct. 18 more cars were loaded with revenue freight than during any other week in the history of American railroads. The total of 1,102,336 cars exceeded by 4843 cars the previous high record attained in the last week of September, 1923. Perhaps the most remarkable phase of this gigantic achievement is that it was accompanied by no car shortage or congestion of any sort. The number of idle cars of something less than 100,000 is well above the danger line of a shortage but it is far below the peak of car idleness of 371,000 during the summer.

The railroads have been able easily to meet the greatest transportation test they have ever known because of three reasons. One is the large addition to railroad plant and equipment in recent years. The second is the greater efficiency of railroad labor and the third is found in the closer cooperation between the roads and shippers. Since 1921 Class 1 roads have added 454,654 new freight cars and 7348 new locomotives. On Oct. 1, 1924, there were on order 49,702 new cars and 285 locomotives.

The most noteworthy features of this fall's traffic records have been the large gain in grain movements and the extraordinary record of merchandise and miscellaneous shipments. Grain marketings are 41 per cent ahead of last year.

All indications point to an expansion of business activities. If consumption has whittled down general stocks of goods, it has also run ahead of the summer's curtailed outputs. Increased industrial outputs are foreshadowed. In times past, a deep depression of business usually has been followed by a record-breaking movement of freight in the succeeding upward turn of the cycle. Apparently this experience is to be repeated. The roads already are profiting from the improvement and income statements are growing more robust. There is more than ordinary promise for the steel industry in these good prospects for its most important single customer—the railroads.

Why the Unions Are in Ernest

IN AN interview with New York newspaper men recently, E. H. Gary pointed to the decline in the membership of the American Federation of Labor. The federation had 4,078,000 members in 1920; 3,906,000 in 1921; 3,195,000 in 1922 and 2,925,000 in 1923. This represents a loss of more than 1,000,000 members in four years. The figures were cited to give some indication of how the federation's strength is diminishing.

Now the National Metal Trades association shows how the organization is losing its grip on the industries of the United States. A detailed survey just completed reveals, the association reports, "an enormous gain" for the open shop movement since 1918. Ninety per cent of American industry and workers are operating under open shop conditions.

Some of those industries in which trade unionism either has lost ground or has failed to make much progress are those of steel, packing, printing and newspapers. Even in the vitally important building industry, generally understood to be dominated by the unions, there is noticeable a trend toward the open shop. Not over 10 per cent of the building construction in towns of 25,000 population was on an open shop basis at the beginning of 1919. Now at least 40 per cent is open shop. The unions' power in the building trades has been greatly reduced in some important centers.

Unions also wield less influence over railroad management. Forty per cent of the railway mileage of the United States is operated by direct agreement between men and managers.

With these facts in mind it may be understood why the federation and similar organizations are exerting themselves more than usual in the presi-

dential election. Success for them is one of their hopes for recouping prestige and making up for loss of membership by arbitrary rule of minority.

Yesterdays in Industry

Trade and Technical News from IRON TRADE REVIEW 10, 20 and 30 Years Ago

Yesterdays in Industry

PROGRESS often has leaden feet. Even 30 years ago, no one knows how much longer, the finished steel and iron contract was voidable and favored only the buyer. In this issue it is related that bar iron manufacturers were seeking relief from the evils of such contracts and were suggesting a blacklist and refusal to sell to consumers who had repudiated tonnages on a falling market.

* * * *

American wages in the steel trade seem always to have been much higher than those paid in England. In this issue Thomas F. Neidringhaus of the St. Louis Stamping Co. announced a cut in wages of tin plate workers, following the recent reduction of tariff on tin plate. He said this would bring wages of these workers down to 100 per cent above those paid to Welsh and English workmen. They had been 150 per cent higher under the McKinley tariff.

* * *

November 3, 1904

DRIVING from the rear seat of an automobile seems to have been more than a modern joke on this date. In this issue is a description of a three-cylinder gasoline motor perfecter and patented by the Adams Co., Dubuque, Iowa, of which it is naively said it could be controlled from either the front or the rear seat, it rotated the three cylinders horizontally, eccentrically about the driving shaft. But even with this advantage it seems not to have become popular.

* * *

E. A. S. Clarke, general manager of manufacturing for the International Harvester Co., will assume his duties as president of the Lackawanna Steel Co. Jan. 1. Mr. Clarke now is secretary of the American Iron and Steel institute.

* * *

A paper by James Gayley before the Iron and Steel institute on a dry blast for blast furnaces is called revolutionary and the results marvelous. The author claimed savings of 20 per cent in fuel and an increase of 25 per cent in tonnage.

* * *

November 5, 1914

THE address of Judge Gary before the American Iron and Steel institute at Birmingham counseled peace and fair dealing among manufacturers. It sounds a keynote to which his hearers responded warmly. Ten years later his address at New York sounds another keynote as warmly received.

* * *

Pig iron production for October is the smallest in 45 months and the number of stacks in blast is the smallest in more than six years.

Some Prices from the Past

	Nov. 1, 1894	Nov. 3, 1904	Nov. 5, 1914
Basic, Pittsburgh	....	13.85	13.45
Bessemer, Pittsburgh	11.00	14.15	14.75
No. 2 foundry, Pittsburgh	10.50	14.35	13.70
No. 2 foundry, Chicago	10.00	15.00	13.00
Lake Superior, Chicago	13.00	16.00	16.00
No. 2 southern, Birmingham	....	12.00	10.00
Bars, steel Pittsburgh	....	1.30c	1.15c
Bars, steel, Chicago	1.20c	1.465c	1.28c
Plates, Pittsburgh	1.30c	1.40c	1.10c
Shapes, Pittsburgh	1.25c	1.40c	1.15c
Heavy melting steel, Pittsburgh	....	13.50	10.25
Heavy melting steel, Chicago	7.00	11.50	8.50

Business Recovery Forecasted

BY FRANK B. McMILLIN

President Ohio Chamber of Commerce, and Vice President Hydraulic Press Mfg Co. Mt. Gilead, O.

A CAREFUL and conservative analysis of report issued from various sources in reference to the business situation and a close observance of what has actually taken place during the past weeks, prompt me to make the following comments:

First: It is gratifying to note the almost universal expression of confidence in the present outlook for improvement in business conditions. These expressions are more than the father of the wish. They are a result of a knowledge of a reaction toward a gradual improvement, at least, in economic conditions. It is the almost universal comment that we are headed in the right direction for the first time in our recent post-war experience.

Second: Business recovery is rapidly becoming more than the fervent desire of those who have struggled long, faithfully and zealously during one of the most definite reactions in production that can be found in history. The fact of slow sure business recovery is proven by statistical evidence, by railroad loadings, by building improvement, by steel orders, by gradual improvement in the automobile industry, by the first ray of hope which has fallen on the machine tool industry since 1920 and by the increase in the price of farm products.

Third: Every true citizen is proud of the business-like, prompt and efficient manner in which the European imbroglio of long standing is being settled—under the leadership of American business men. The business world could not function in a proper manner without the understanding and settlement brought about under the Dawes plan. Herein lies one of the big factors in the change in the present business outlook for America and the entire world.

Fourth: Not all of our industries and business interests have yet felt the new impulse but more feel and experience better conditions if all of us support, in a most definite and active way, a number of basic things:

A—Resist a boom—it is mostly noise and smoke and soon fades away.

B—Don't inflate prices—over inflation results in a "blow-out."

C—Always give 100 per cent values in your profession, in your product.

D—Insist on the idea of honest service on the part of employes. Teach the principle that the delivering of honest service is as much a moral obligation as to give 36 inches for a yard, or 16 ounces for a pound, or 100 cents for a dollar.

E—Stand loyally and openly for law enforcement and against a constitutional amendment which will prostitute the Supreme Court of the United States.

F—Urge the members of our legislature to provide for state police with statewide jurisdiction to enforce our road and criminal laws and to run down criminals whose rendezvous are now in the outlying rural districts, made possible by the development of rapid and easy transportation through good roads and automobiles. The life and property of both city and rural population now need this protection which local authorities do not and cannot give.

G—Insist on the lowering of taxes by budgeting of public expenses and a strict adherence to the budget by both state and national taxspenders also for greater economy and efficiency in business and private affairs.

Fifth: Better times will be hastened by opposition to liberalism and a return to conservatism in dress, in speech, in politics, in morals and religion and by a restoration of home and family life for both parents and children.

Declare Plus Case Is Closed

Commission's Counsel Believes There Is No Chance for Appeal, Despite E. H. Gary's Reference—Attorney General Attacks Pittsburgh "Element of Inflation" in Suit Against Harvester Company

WASHINGTON, Nov. 4.—A question has arisen here as to the significance of the statement of E. H. Gary before the American Iron and Steel institute, in which he urged steel companies to give careful thought to the subject before appealing from the Pittsburgh plus cease-and-desist order. Particular inquiry has been directed at the statement implying that appeal against the decision can be made.

Federal trade commission attorneys, who directed the Pittsburgh plus case against the Steel corporation and subsidiaries, have stated heretofore that no recourse in law is given the independent producers or any others. The commission refuses to comment on this statement in Mr. Gary's speech. The commission's attorneys believe that the cease-and-desist order closed the incident, as far as any other proceedings are concerned.

Some question has arisen as to whether a test case can be submitted which would show injury to some of the independent producers as a result of Pittsburgh plus having been abolished, but legal opinion here is that this would be out of the question and that Pittsburgh plus never can be restored through legal action as long as the federal trade act stands on the statute books.

In his brief recently filed in United States district court at St. Paul in supplemental proceedings against the International Harvester Co., Chicago, charging that the dissolution decree against this company in 1918 has failed to restore proper competitive conditions in the agricultural implement industry, Attorney General Stone has taken official recognition of the Pittsburgh plus elimination.

In arguing the alleged dominance by the Harvester company over its competitors in manufacturing costs, the attorney general states that the previous figures of the federal trade commission in the Harvester case failed to take into consideration the element of inflation in the company's costs represented by Pittsburgh plus.

The brief points out that testimony showed the company, in disposing of its surplus steel and steel for its own use, observed the prices and terms of its competitors in the steel business, more especially the United States Steel Corp.

"This affinity between the monarch of the harvester industry and the monarch of the steel industry," says the brief of the attorney general, "extends to the observance of the same cost accounting methods, which, according to testimony of the comptroller of the International Harvester Co., have been uniform for a long term of years.

"It also extended to the observance by the International Harvester Co. of the Pittsburgh basing point practice of the United States Steel Corp., the so-called Pittsburgh plus practice, recently condemned by the federal trade commission as an unfair method of competition.

"Under this practice, a purchaser buying steel from a plant or mill located in his own city would be required to pay the same price to that mill as if he had bought the steel in Pittsburgh and actually paid the freight from Pittsburgh to point of delivery.

"The profits made by the International Harvester Co. by virtue of the Pittsburgh plus system are reflected in the profits of the Wisconsin Steel Co. The amount of inflation in prices of harvesting machines by virtue of the Pittsburgh plus system varies according to the freight rate and quantity of steel used in the manufacture of the machines.

"The inflation of the cost in the manufacture of harvesting machines by the use of this system has the effect of showing a decreased earning on the sale of harvesting machines and a corresponding increase in the earnings of the Wisconsin Steel Co., or the steel department of the International Harvester Co. This also has the effect of showing a smaller rate of earning from the sale of harvesting machines than really exists.

"This supposed freight is included in the cost sheets showing the cost of steel entering into the manufacture of harvesting machines. The selling price of harvesting machines is fixed by first computing the cost and then adding thereto the per cent of profit desired. It is therefore observed that the consumer not only pays the additional amount in price based on the freight he would have to pay if actually bought in Pittsburgh, but in addition he must pay an amount equal to the per cent of profit made by the manufacturer in the sale of the machmine.

"If it is desired to make 20 per cent profit on cost, the total inflation on account of the Pittsburgh plus system in the sale price of a 6-foot grain binder would be $2.77 plus 20 per cent, or 55 cents, aggregating a total of $3.32. The inflation in a 205-pound mower would be 78 cents plus 20 per cent, or 93 cents. The inflation in a 10 x 26 rake would be $1.30 plus 20 per cent, or $1.56. The inflation in a regular corn binder would be $2.06 plus 20 per cent, or $2.47."

These figures were obtained by taking the number of pounds of steel required in the manufacture of the machines and the cost of steel, plus the freight rate from Pittsburgh to Chicago over certain periods, to show the so-called additional amount paid by the consumer because of Pittsburgh plus.

"The higher the freight rate from Pittsburgh to Chicago," says the brief, "the larger the profits of the International Harvester Co. by virtue of the Pittsburgh plus system of price fixing, the larger amount the consumer must pay for harvesting machines and the smaller the apparent rate of earnings of the International Harvester Co. upon the sale of harvesting machines."

This question of the added cost to the user of agricultural implements, due to Pittsburgh plus, has been the subject of no little controversy. Recent figures showed that methods employed by the federal trade commission in computing the added cost to agricultural implements were inaccurate in many respects.

Traffic Managers Organize for Action

PITTSBURGH, Nov. 4.—Realizing the need for concerted action in the solution of problems confronting them with the abolition of Pittsburgh plus, 40 representative shippers met at the Chamber of Commerce building here Oct. 30. Most of them came from the Pittsburgh, Youngstown, Wheeling, Canton, Johnstown districts. A committee was appointed with A. R. Kennedy, traffic manager, Pittsburgh Steel Co., Pittsburgh, chairman, and the committee will meet early in the week of Nov. 10 to discuss suggestions and formulate a plan of action. The committee comprises:

For the Pittsburgh district: Mr. Kennedy, H. E. Holdren, traffic manager, Pittsburgh-Des Moines Steel Co., Pittsburgh; J. W. Matthews, Central Tube Co., Pittsburgh; J. J. Eichenberger, Pittsburgh Crucible Steel Co., Pittsburgh,

and D. O. Moore, traffic manager, Chamber of Commerce, Pittsburgh.

For the Johnstown, Pa., district: H. C. Crawford, assistant general traffic manager, Bethlehem Steel Corp., Bethlehem, Pa.

For the Beaver Valley district: M. P. S. Orner, Pittsburgh Bridge & Iron Works, Rochester, Pa.

For the Youngstown, O., district: H. D. Rhodehouse, traffic manager, Chamber of Commerce, Youngstown, O.

For the Canton, O., district: R. B. Robinson, United Alloy Steel Corp., Canton, O.

For the Wheeling-Steubenville-Weirton districts: W. F. Morris, Weirton Steel Co., Frick building, Pittsburgh, and A. P. Oxtoby, traffic manager, Wheeling Steel Corp., Wheeling, W. Va.

After the meeting was called to order, Mr. Kennedy spoke of discriminatory freight rates and cited instances of inequalities and inconsistencies. He referred particularly to the fact that the Pittsburgh district steelmakers have six and one-half to 8 tons of raw material brought to them before they can ship out one ton of finished steel. Hence, for every ton of steel bought elsewhere which ordinarily in the past has been purchased in Pittsburgh, the carriers lose the transportation of the raw material. Following this the two or three representatives of railroads were asked to retire which they did, promising the sympathy of the railroads and their co-operation in seeking a common ground.

It was suggested that application to the carriers be made for through rates to take the place of the combination rates now in effect to points in the Central West beyond the Mississippi river. It was pointed out that this would eliminate intermediate terminal expenses now borne by the shippers at terminal breaking points.

Various traffic managers stated their problems. Several cited details as to the increased production costs brought about by freight absorption necessary since the cease-and-desist order was issued. The average absorption figured out to $3.50 per ton. While a few of those present counseled delay until the settlement of the Jones & Laughlin Steel Corp. case before the interstate commerce commission seeking a reduction in rates on steel from fifth to sixth class, the majority opinion seemed to be that something should be done immediately. Those who attended were:

E. R. Griffith, Sharon Steel Hoop Co., Sharon, Pa.; H. D. Rhodehouse, Chamber of Commerce, Youngstown; R. B. Robinson, United Alloy Steel Corp., Canton, O.; F. I. Swaney, Central Steel Co., Massillon, O.; J. R. Ellis, Superior Sheet Steel Co., Canton, O.; A. H. Zirckel, Pittsburgh Steel Products Co., Pittsburgh; M. D. Perry, Pittsburgh Screw & Bolt Co., Pittsburgh; F. W. Klos, Wheeling Steel Corp., Wheeling, W. Va.; E. P. Uhl, Jr., Columbia Steel & Shafting Co., Pittsburgh, Carnegie, Pa.; H. A. Cochran, A. M. Byers Co., Pittsburgh; N. D. Carpenter, West Leechburg Steel Co., Pittsburgh; L. G. Halts, United Engineering & Foundry Co., Pittsburgh; J. W. Mathews, Central Tube Co., Pittsburgh; M. P. S. Orner, Pittsburgh Bridge & Iron Works, Rochester, Pa.; H. N. Holdren, Pittsburgh-Des Moines Steel Co., Pittsburgh; C. J. Kim, National Metal Molding Co., Pittsburgh; W. A. Foley, Paige Steel & Wire Co., Pittsburgh, representing R. L. Jamison, American Chain Co., Bridgeport, Conn.; M. C. Richards, Spang, Chalfant & Co., Inc., Pittsburgh, C. S. Davis, Standard Tin Plate Co., Canonsburg, Pa.; W. G. Blume, Superior Steel Corp., Pittsburgh; V. T. Renner, Parkersburg Iron & Steel Co., Parkersburg, W. Va.; T. M. Stedeford, Thomas Sheet Steel Co., Niles, O.; A. B. Cameron, Oliver Iron & Steel Corp., Pittsburgh; E. J. Vetter, American Steel Co., Pittsburgh; J. B. Connally, Mesta Machine Co., Pittsburgh; C. F. Hay, The Austin Co., Cleveland; W. F. Morris Jr., Weirton Steel Co., Weirton, W. Va., Pittsburgh; A. W. Boyd, Union Drawn Steel Co., Beaver Falls, Pa.; George B. Mitchell, Union Drawn Steel Co.; Beaver Falls, Pa.; Robert Garland, Garland Mfg. Co., Pittsburgh; J. J. Eichenberger, Pittsburgh Crucible Steel Co., Pittsburgh; W. H. Welsh, Youngstown Sheet & Tube Co., Youngstown; E. F. Kidd, Republic Iron & Steel Co., Youngstown; Wm. B. Anderson, Fort Pitt Bridge Works, Pittsburgh; E. T. Butler, traffic manager, Trumbull Steel Co., Warren, O.

The United States Steel Corp. has given $375,000 to the Y. M. C. A. of South Chicago, Ill., for the erection of a new building provided a total of $600,000 is raised.

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Beehive Coke Production Declines Slightly

Washington, Nov. 4.—The production of beehive coke declined somewhat in the week ended Oct. 25 says the geological survey. The total output, as estimated from reports of the coke carriers on the number of cars shipped, is placed at 140,000 net tons, a decrease of 7000 tons. The principal change in the district figures was a decrease of 7000 tons in Pennsylvania and Ohio. Comparison with the record of the corresponding week of 1923 shows that the present rate of output is 50 per cent less than at that time. The weekly record by districts in net tons follows:

	—Week ended— Oct. 25, 1924a	Oct. 18, 1924b	Oct. 27, 1923
Pennsylvania and Ohio	100,000	107,000	220,000
West Virginia	8,000	8,000	15,000
Alabama, Kentucky, Tennessee and Georgia	16,000	15,000	20,000
Virginia	8,000	8,000	12,000
Colorado and New Mexico	4,000	5,000	6,000
Washington & Utah	4,000	4,000	3,000
United States total	140,000	147,000	276,000
Daily average	23,000	25,000	46,000

(a) Subject to revision. (b) Revised from last report.

Enameled Orders Drop

Washington, Nov. 4.—Unfilled orders of enameled ware continue to drop, according to reports to the department of commerce. Orders shipped in baths gained from 103,232 in August to 104,622 in September, but orders booked dropped from 90,955 to 88,913 and unfilled orders from 154,659 to 131,904. Following is a comparison of unfilled orders of baths and total small ware.

	Unfilled Orders Small Ware 1924	1923	Unfilled Orders Baths 1924	1923
January	735,131	849,094	216,295	250,369
February	790,983	1,021,260	253,279	301,911
March	822,176	1,089,783	245,921	310,740
April	728,122	1,135,863	239,118	318,329
May	579,854	1,099,460	214,309	296,497
June	458,182	1,038,045	181,907	286,888
July	395,697	931,910	169,394	245,568
August	339,022	1,828,658	154,659	248,844
September	286,783	777,105	131,904	201,180

Stoker Bookings Lower

Washington, Nov. 4.—Sales of mechanical stokers dropped in September the total being 73 as compared with 94 in August and 117 in July. The September figure is the lowest for the year, excepting May when 64 were sold. Following are comparisons of sales since January.

1924	Stokers sold	Fire tube boilers	Water tube boilers
January	91	7	84
February	110	11	99
March	89	12	77
April	89	15	74
May	64	3	61
June	102	19	83
July	115	14	101
August	94	17	77
September	73	27	46

The Business Trend

November 6, 1924

BY JOHN W. HILL, FINANCIAL EDITOR

THE election has passed into history. With it has vanished the uncertainty over the outcome as a deterrent factor in business. Now more permanent controlling economic forces may operate freely, and in the main they are constructive.

Improvement in some lines may be accelerated. But those who hold that the gains already achieved have been trifling overlook some momentous facts. Of these perhaps the most impressive are the increases in traffic and in retail trade.

The movement of freight has attained prodigious totals. As shown by the **Business Trend** graph, car loadings during the week ended Oct. 18 reached a new pinnacle for all time. The number of 1,102,336 cars was more than 4000 above the previous peak in September, 1923.

This is incontestable evidence of an immensity of trade which challenges the imagination and refutes complaints that trade is really poor. It reveals the huge consumptive power of 112,000,000 Americans and of millions of hungry and a little more prosperous Europeans.

Retail Trade Gains

High traffic totals are resulting from rapid marketing of grain, and from increased distribution of merchandise. The movement of merchandise has been making new high levels for a number of weeks. This reflects the depleted condition of stocks coupled with a reported greater than normal seasonal gain for retail trade.

If production has been lagging, the continuance of such enormous consumption as revealed by carloadings, forecasts higher outputs. In fact that tendency has already appeared. In September the federal reserve board's index of basic production increased by 9 per cent, the first gain since January.

Sterling Higher

A striking financial development has been the recent strength of British sterling. The exchange rate now stands more than 16 cents above the low point of the autumn and 33 cents over that for the year.

The rise clearly reflects the relief which British capital feels over the overwhelming defeat of the labor ministry. When labor came into power there was a flight of capital from London. Now British capitalists are confidently drawing their balances back home.

Invisible forces making for higher sterling rates are more powerful than the purely trade influences which might tend toward another effect. In nine months of 1924 this country's excess of exports to Europe was $344,000,000 above that of last year and for England alone the increase was $107,000,000. European buying again is becoming an increasing factor of importance in American activities.

The Barometer of Business

Weekly Comparison

	Last week	Week before	One mo. ago	One year ago	1913
Business failures ..	364	347	302	310	...
Cash ratio Fed. Res. System %..	78.6	79.2	79.1	76.3	...
Loan Rate, 4-6 mos. N. Y. %..	3-3¼	3-3¼	3-3¼	5¼	5½
Aver. price 25 industrial shares ..	$119.10	$117.30	$117.50	$105.44	$58.19
Aver. price 25 railroad shares	$70.48	$70.27	$69.54	$58.30	$82.97
Av. prices 40 bonds	$81.27	$81.13	$81.07	$76.08	$93.00
Car loadings week ended Oct. 18 ..	1,102,336	1,088,462	1,076,553	1,072,881	*1,008,818
Bank Debits 246 cities (000 omitted)	$9,860,043	$10,768,238	$10,609,620	$9,303,656	.....

*1920.

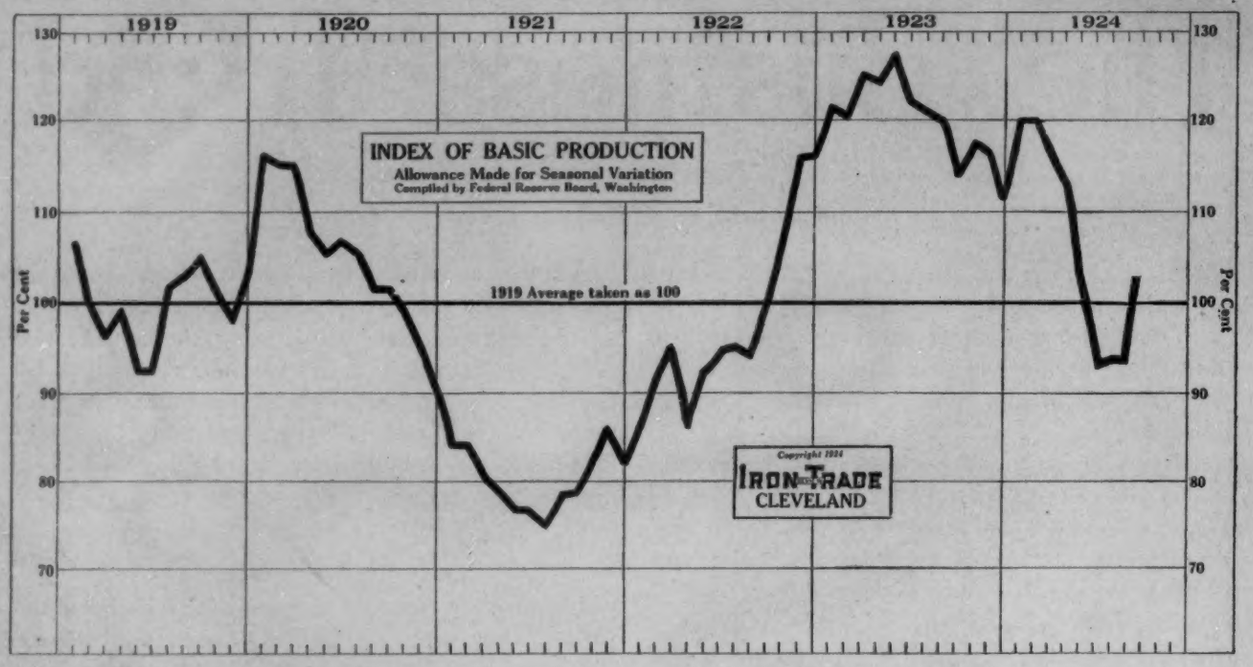
Foreign Exchange (Demand)

	Normal	Last week close	One week before	One month ago	One year ago
Sterling	$4.86	$4.54	$4.49	$4.46	$4.45
Francs	19.3c	5.25c	5.21c	5.25c	5.78c
Lira	19.3c	4.36c	4.32c	4.37c	4.45c

Monthly Comparison

	Sept.	One Month before	One Year ago	1913 Mo. average
Dodge Building awards in 27 states (sq. ft.)	43,452,700	41,852,000	39,391,200	31,250,000
Business failures: Number	1,306	1,520	1,226	1,336
Liabilities ..	$34,296,276	$55,153,981	$28,698,649	$22,732,000
Exports	$427,000,000	$331,600,000	$381,400,000	$233,195,000
Excess of gold imports	$1,975,840	$15,752,524	$26,941,264	†$630,716
Bureau of labor price index..	148.8	149.7	153.7	100
Bradstreet's price index	140.6	138.6	141.6	100
Economist's British price index	174	170.2	157.7	100
Nat'l Industrial Con. board living cost index	*161.7	161.7	161.9	‡100
New incorporations	$478,680,000	$398,950,080	$500,830,000	$49,301,000
Railroad net earnings	*$95,415,300	$75,027,000	$98,934,000	$59,301,000

†Excess of gold exports. ‡July, 1914. *August.

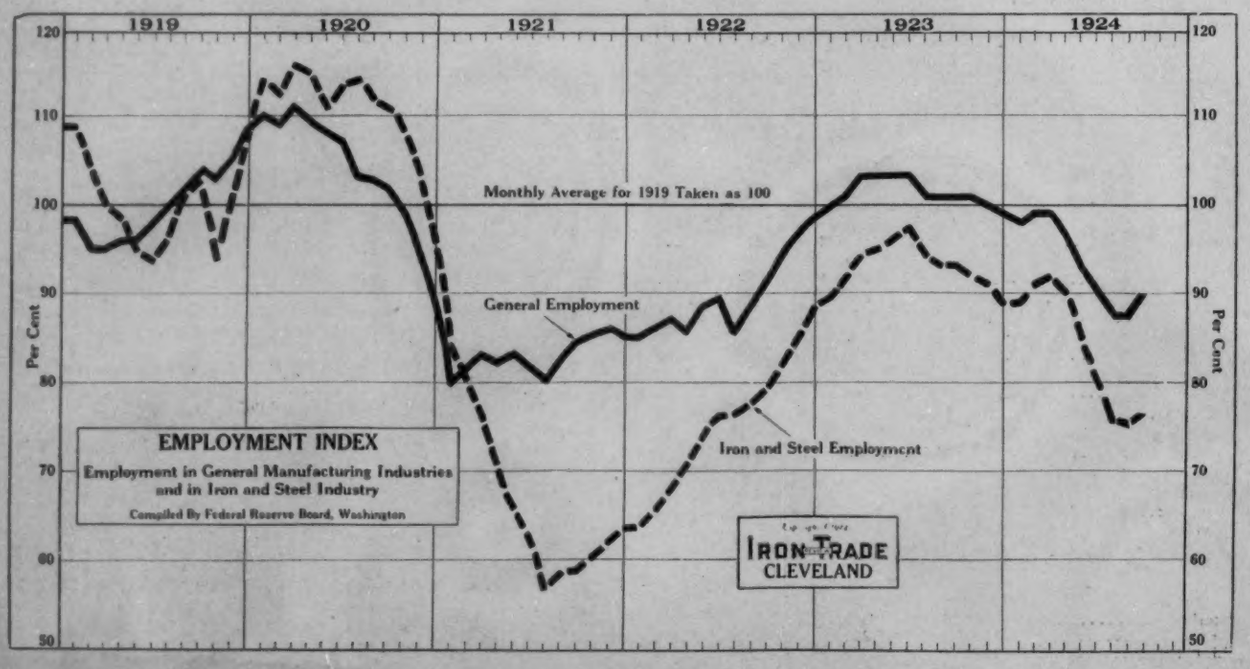


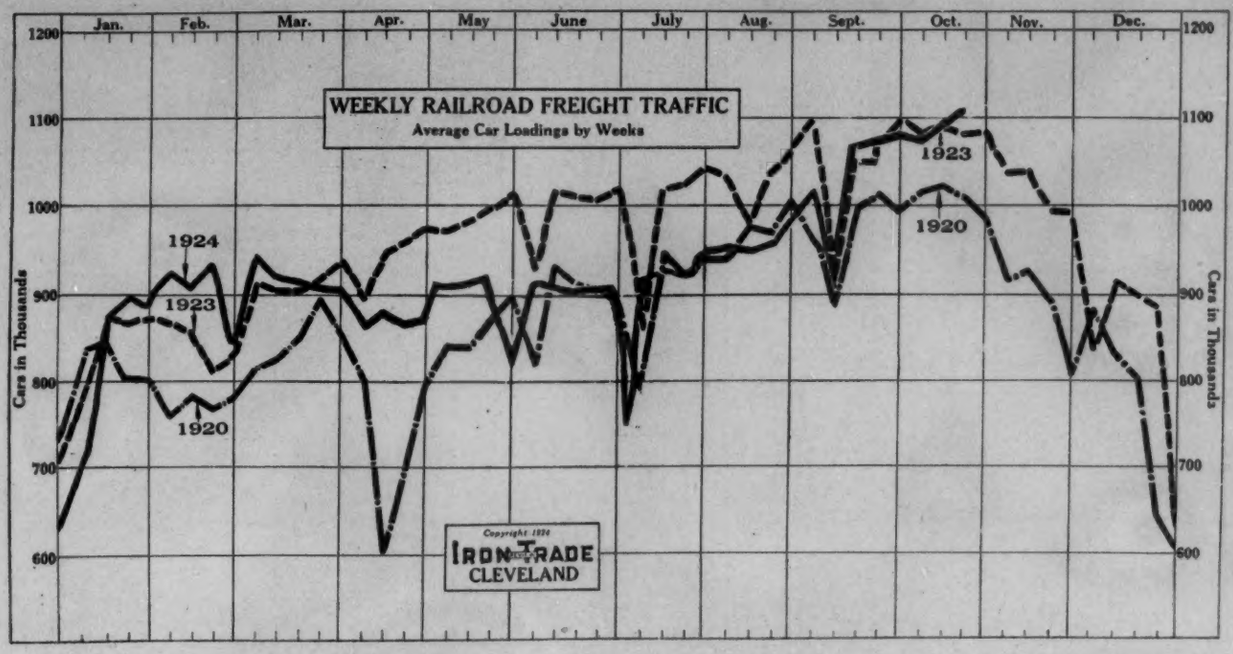
Basic Production

SEPTEMBER brought a definite upward turn of production in basic industries. The index of output computed by the federal reserve board at Washington, with allowance for seasonal variations, increased 9 per cent during the month. This was the first positive gain since February. From February to June production dropped 22 per cent to an index of 93. In July and August it was at 94 and in September it was at 102.5. Increased activity was reported for many lines, including iron and steel, coal and textiles.

Employment

INDUSTRIAL employment in the United States, as compiled by the federal reserve board, gained in September for the first time since last January. The index for the month stood at 90 per cent of the 1919 monthly average, an increase of 2 per cent over the August level. Nearly all reporting lines reported more employment. Average weekly earnings were higher because of less part-time employment. In iron and steel there was a slight increase in employment, the first since March, but the index is 21 per cent below the 1923 top.



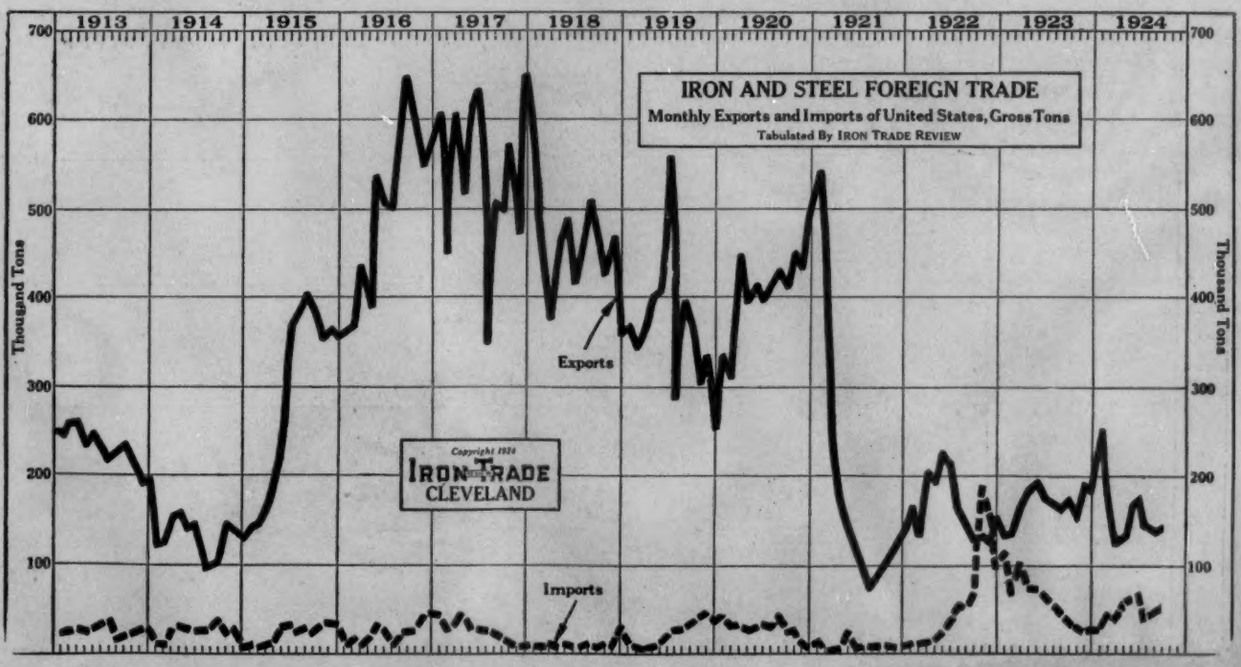


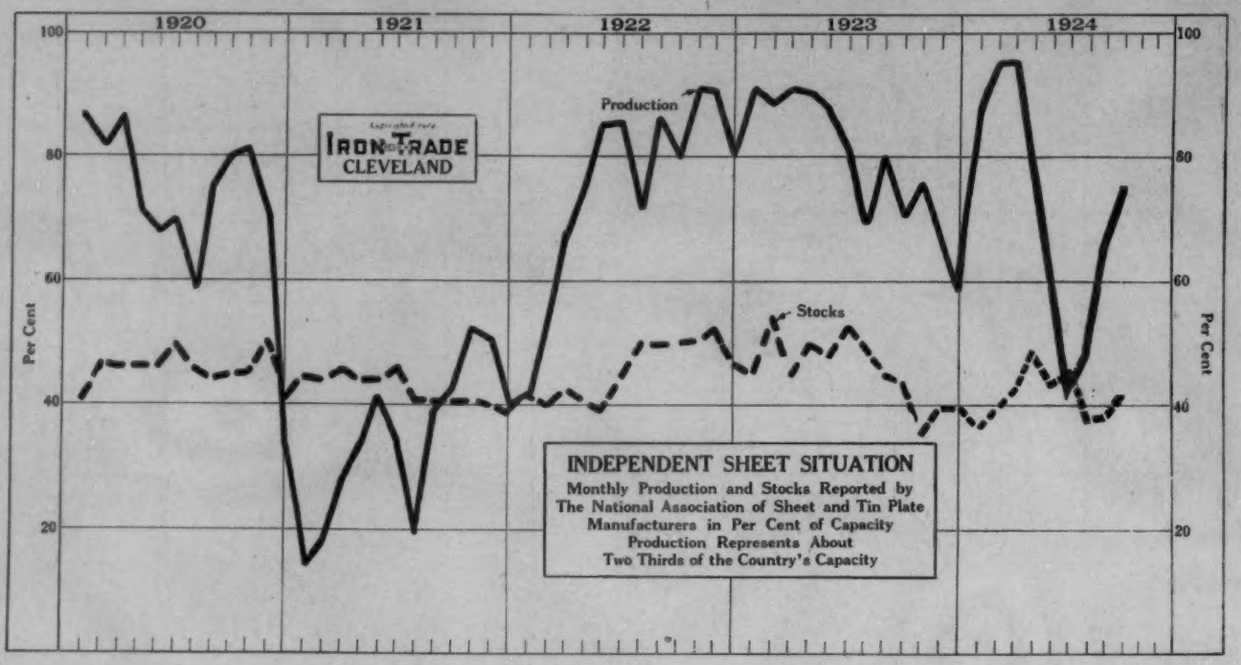
Freight Traffic

THE volume of car loadings during the week ended Oct. 18 overtopped every other week in the country's history. The total was 1,102,336 cars. This exceeded by 4843 cars the previous high record of 1,097,493 cars in the last week of September, 1923. The record was accomplished without a car shortage or congestion of any sort. The roads have more than 90,000 idle cars. This is a great shrinkage from the highest number of 371,000 on hand last summer. The enormous traffic totals reflect enormous consumption.

Steel Foreign Trade

NO HINT of the threatened large flood of European iron and steel into the United States is revealed in the September foreign trade record. Imports of 45,217 tons were only slightly greater than the total of 44,928 tons for August. They were larger than the 36,612 tons for September, 1923. Exports of 136,262 tons also varied but little from the August figure. They, however, were 21 per cent less than one year before. Imports of pig iron last month of 16,347 were nearly double those of 12 months before.



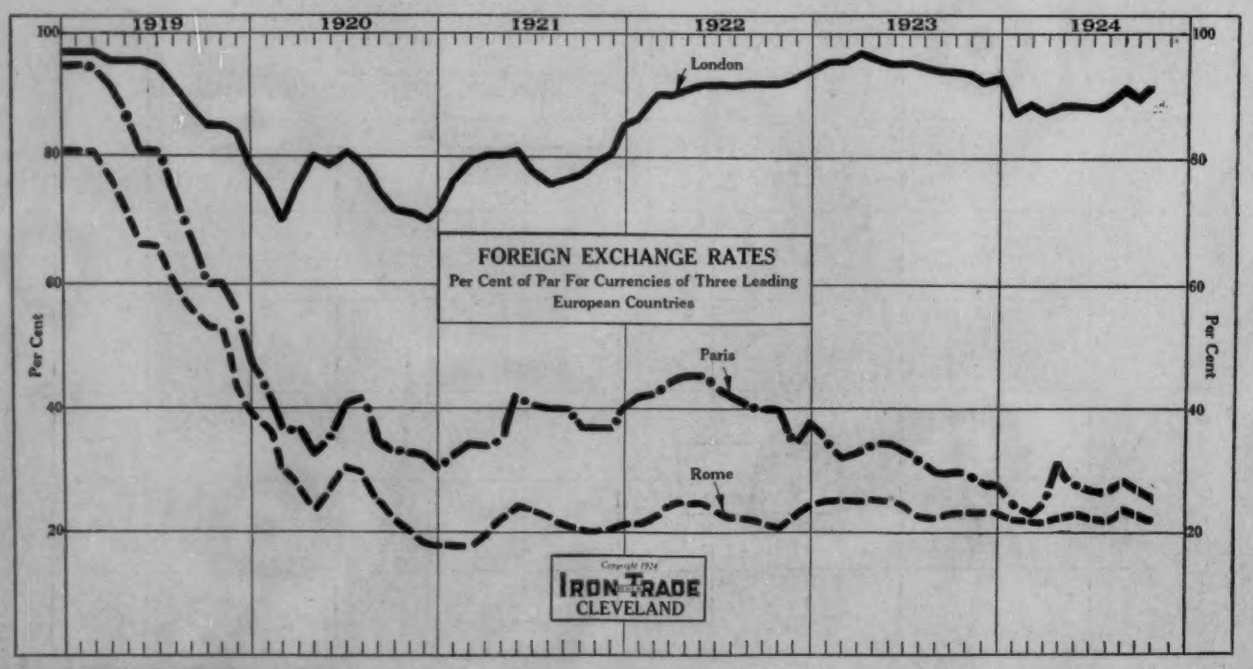


Independent Sheets

THE sheet industry, measured by records of independent sheet mills, continues to make rapid strides forward. In September production was 76 per cent of capacity compared with 65 per cent in August and a bottom level of 41 per cent in May. The total was 217,981 tons, a gain in September of 10 per cent. Sales of 227,520 tons during the month increased 7.8 per cent and shipments of 190,210 tons increased 7 per cent over August. Unfilled tonnage on Oct. 1 stood at 95 per cent of capacity. Stocks have increased.

Foreign Exchange

THE foreign exchange market found joy in the victory of the conservatives in the election in Great Britain. British sterling which had been strong in anticipation of the event made further advance when the results of the poll became known. French and Italian exchanges have not shared greatly in the strength of sterling. The materialization of plans for a large French loan offering in this country would bolster up francs. Fundamental conditions underlying European exchanges are improving.



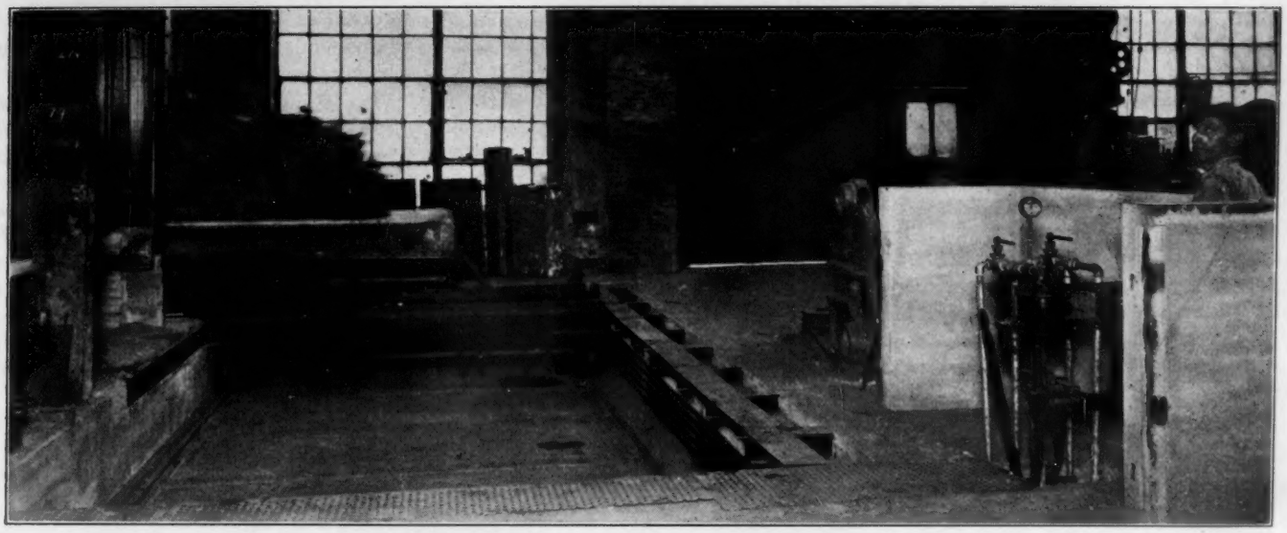


Fig. 1—Electric annealing furnace, transfer table and control pulpit at plant of Milwaukee Steel Foundry Co.

Annealing Castings Electrically

Milwaukee Manufacturer of Steel Castings Adopts Electric Heat for Annealing and Heat Treating Product—Variable Input Arrangement Conserves Power —Transfer Table and Storage Track Facilitate Handling of Cars

SUCH rapid strides are being made in heat treating that scarcely a week passes in which an installation of new equipment, involving improvements in design, application or practice, is not placed in operation in one or more of the thousands of metal-working plants of the United States. By far the majority of these installations are designed for handling rolled steel or forged products, and inasmuch as equipment for these types of work receive a great deal of notice in the technical press, it may not be inopportune at this time to outline the trend of progress in the annealing and heat treating of steel castings. Steel foundrymen have been annealing castings for many years, but the practice has been limited to a comparatively few classes of work in which the strains set up by cooling had to be relieved in order to make the pieces suitable for use. While the tendency toward annealing all steel castings has been noticeable for a number of years, particularly since the war, the practice still is far from universal. The necessity of heat treating has been brought about by several factors that have crept into the steel casting industry in comparatively recent years. In the natural rivalry between cast and forged steel, it is not surprising that foundrymen have turned more and more to alloyed metal. The advantages of specialization, which have induced castings manufacturers to concentrate their efforts on limited fields such as parts for dredges, steam shovels, **switch point** and crossing members, etc. which must resist abrasion, also have been responsible for the wider use of alloy steels. This of course has directed more attention to the problems of heat treating.

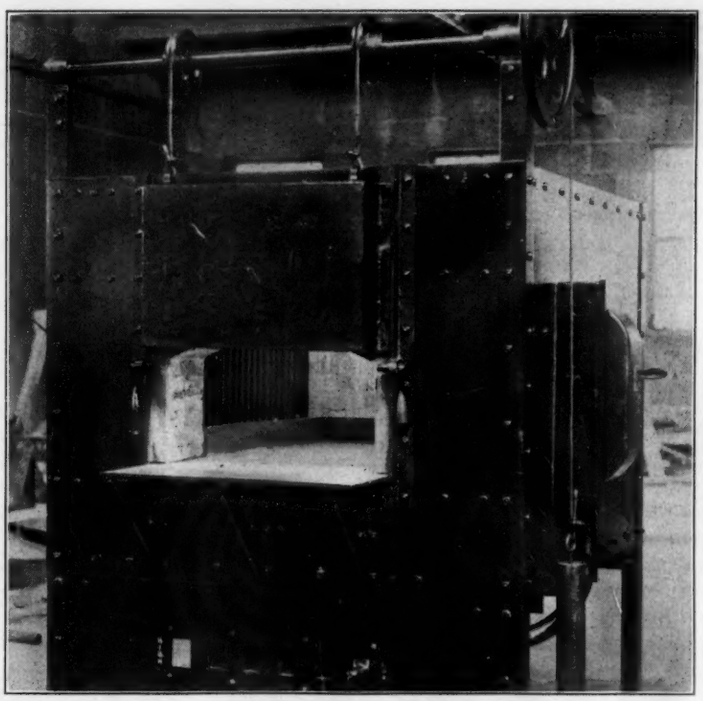


FIG. 2—SMALL ELECTRIC ANNEALING FURNACE FOR HANDLING MISCELLANEOUS WORK

The introduction of electric heating furnaces in steel foundries is of comparatively recent date, and has lagged behind the adoption of this type of equipment in plants where forgings and rolled steel products are handled. In most cases the treating of castings involves furnaces of medium or large capacity and as a rule foundrymen have not been convinced that electric heating is economical. One of the few steel foundries to adopt electricity in all departments is the Milwaukee Steel Foundry Co., 127 South Water street, Milwaukee. The output of this plant is around 400 tons per month, part of which is alloy steel. Since 1919 the company has been devoting much attention to the development of chrome-nickel and other

alloy steels for use in street railway frogs, switches and crossings. The metal is poured from a basic-lined electric furnace, cores are baked in electric core ovens and the castings are annealed in electric units.

Satisfactory heat treating requires that attention be given to the analysis of the metal. A preliminary carbon analysis is run before the metal is tapped and a final analysis is taken at the middle of each heat. With this as a basis, critical points are calculated and the desired heat treatment determined, reference

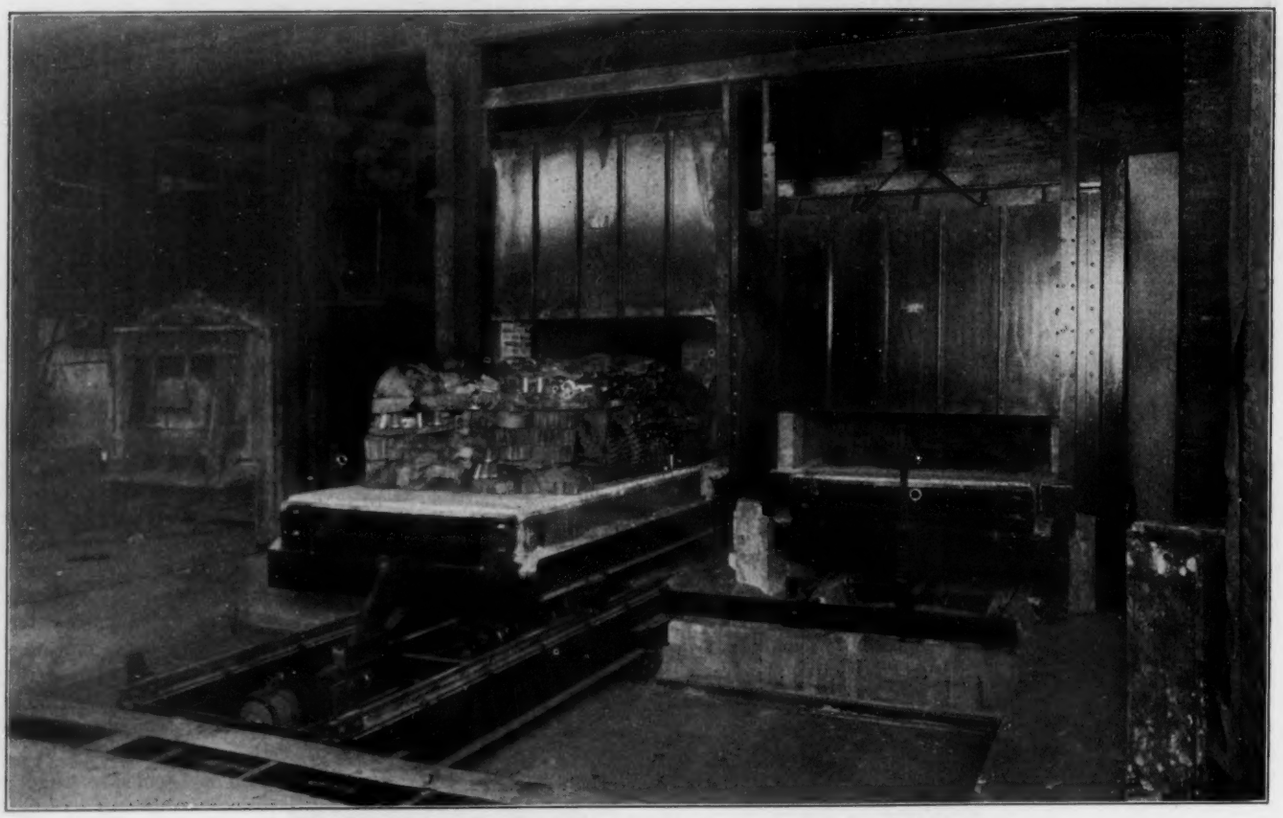


FIG. 3—LOAD OF CASTINGS BEING CHARGED IN HEATING CHAMBER. THE STORAGE TRACK AND OLD ANNEALING FURNACE ARE AT LEFT

also being made to the specifications supplied by the customer.

As the treatment given varies with each class of product, care is taken in grouping castings for each charge of the heat treating furnaces. Castings are segregated not only according to analysis, but also to size, thickness of section, etc. Moreover, the extent of treatment differs widely, some castings being given a simple anneal while others are annealed, air quenched and drawn.

The heat treating equipment consists of one small electric unit for small lots and miscellaneous castings and a large furnace for tonnage work. Both are designed for a variable power input and were built and installed by the Electric Furnace Co., Salem, O.

The large furnace is of the car-bottom type and was designed especially for jobbing foundry requirements. The effective loading area of each car is 5½ feet wide, 12 feet long and 3½ feet high, accommodating an average load of 10 tons. The heating capacity is approximately one ton per hour, which means that two 10-ton heats can be made per day of 20 hours, including ample time for soaking. The furnace is operated on current purchased at the off-peak rate which happens to be one-half of the demand charge.

As shown clearly in Fig. 3 the installation embraces two chambers, the one on the right being for heating and the one on the left for cooling. At the left of the heating chamber is a storage track which is long enough to accommodate one charging car. A transfer table runs on a wide track in a pit in front of the two chambers and the storage track, and provides for shifting the cars from one unit to another as needed. A typical cycle of car movements is as follows:

Assume that Car No. 1 is in the heating chamber and Car No. 2 is in the cooling chamber. After the castings on Car No. 2 have cooled about 6 hours, the car is pulled out, unloaded and reloaded and placed on the storage track. After the castings on Car No. 1 have been heated for about 10 hours, the car is pulled out and placed in the cooling chamber. Then the reloaded Car No. 2 is removed from the storage track and placed in the heating chamber, completing the cycle.

The transfer of the cars, operation of the chamber doors, and movement of the cars in and out of the chambers is controlled from a pulpit situated at the edge of the transfer pit opposite the heating chamber, as shown in Fig. 1. A controller governs the motors of the transfer table and an air valve actuates the pistons in the air cylinders of the chamber doors. A lever in the pulpit throws locking bars which are operative only when the transfer table is aligned with the furnace chamber and storage tracks. This locking device is safeguarded by a switch which disconnects the power to the furnace charging motor except when the transfer car is in proper alignment with the chamber tracks.

One motor of the transfer table moves it transversely in front of the furnace, while the other drives a pinion, shown in Fig. 4, which engages a rack extending the length of the bottom of each car. As illustrated in Figs. 3 and 4, an extension of this rack folds up against the end of the car so as to clear the transfer table when the car is in the heating or cooling station. To remove a car, this hinged portion of the rack is lowered to a horizontal position, the pivoted bar is swung down to hold the

rack firmly in place, and the pinion of the transfer table meshes with the rack, affording a means of drawing the car onto the table.

The heating elements of the furnace are cast in the shape of a T section and are supported on hangers which allow for expansion of the elements. A nickel-chromium alloy having heat resisting properties is employed, and the elements are hung on the furnace wall so that the narrow section of the T faces the charge. They are designed to give a large heat liberating surface toward the charge elements being below the charge as well as around the sides. The furnace is well adapted to intermittent operation as it is lined with special refractories which permit of rapid temperature rise. It also is equipped with a device for varying the power input at will.

In order that the heat treating equipment may be operated at the highest efficiency, laboratory control is necessary. The chemical and physical laboratory is well equipped with modern apparatus, including three small electirc furnaces, a balance room, a combustion outfit, polishing, etching and microphotographic equipment, a tensile testing machine and a brinell hardness testing machine. Several ingenious devices used in conjunction with the photographic and polishing equipment save considerable time in the preparation of specimens and in photography.

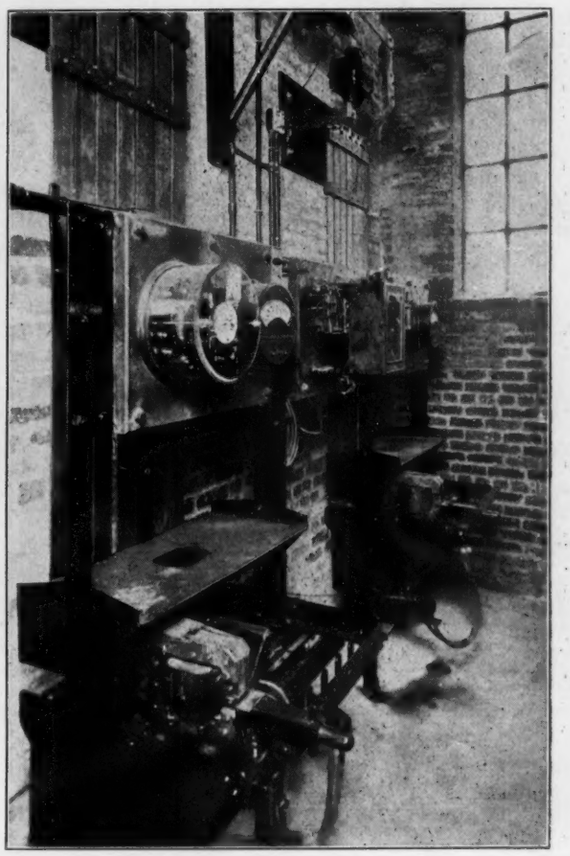


FIG. 4—TRANSFER TABLE SHOWING MOTORS FOR TRANSVERSE MOVEMENT AND FOR CHARGING AND REMOVING CARS FROM CHAMBERS. FIG. 5—VARIABLE INPUT CONTROL APPARATUS OF ANNEALING FURNACE

which is in excess of the wall area covered.

The elements on each of the two side walls are independent of each other and have separate transformer control apparatus. As shown in Fig. 5, the power input is regulated by sliding switches. This means that the operator can adjust the power input to conform to any desired condition. This arrangement is especially desirable when a small charge is being annealed, or when special temperature limitations are involved.

The small furnace, shown in Fig. 2, is of the solid-hearth type and has an effective heating chamber 2 feet wide, 3 feet long and 18 inches high. Its capacity is approximately 400 pounds of castings per hour. The charge is loaded on a nickel-chrome hearth, the heating

Obtain Good Physical Properties

Results obtained by the Milwaukee Steel Foundry Co. in connection with its chrome-nickel steel for crossing work are exceedingly interesting. A typical report of physical properties, picked at random from hundreds of tests on file, showed the following characteristics:

Elastic limit, 82,000 pounds per square inch; tensile strength, 114,800 pounds per square inch; elongation, per cent in 2 inches, 20; reduction of area, per cent, 36.5; and brinell hardness, number 228. The minimum tensile strength is about 110,000 pounds per square inch and the maximum is approximately 135,000 pounds per square inch.

While the large heat treating furnace has not been in operation long enough to afford comparative cost data, it is believed that the use of electric heat will prove comparable with oil or gas in economy under the conditions obtaining in Milwaukee at the present time. It is said that the cost of finishing castings annealed electrically is unusually low, owing to the small amount of scaling. When treating its castings by other methods the company made allowance for a loss of about 1 per cent due to scale. On a basis of 400 tons of castings a month this loss mounted to about 8000 pounds or about $800. If this waste is partly eliminated, as it is expected it will be under present conditions, the amount saved will go far toward paying the power charge for a month.

After four years' trial of group life insurance 5 per cent of the employes of W. K. Henderson Iron Works, of Shreveport, La., have increased their protection by $86,000, which more than doubles the original amount issued. The total in force is $160,000.

Vanadium Steel Shows Strength

Crane Manufacturer Prepares Test Specimens in Cabinet To Help Salesmen Appreciate Advantages of Alloy Steel Castings—Company Operates Own Foundry—Physical Properties of Material Well Above Average

BY H. H. PERRY

TO ASSIST the sales organization to visualize the results obtained from the use of vanadium steel, the Industrial Works, crane manufacturer, Bay City, Mich., has prepared a cabinet containing samples of cast vanadium steel, tensile and bend test bars and photomicrographic sections. The exhibit was prepared to show some actual results chosen at random from every day work, consequently the specimens represent neither the highest nor lowest values.

Minimum tensile requirements in a test bar having a 2-inch gage length are as follows: Tensile strength, 95,000 pounds per square inch; elastic limit, 65,000 pounds per square inch; elongation, 18 per cent; and reduction of area, 30 per cent. These properties give about twice the working strength per pound of ordinary cast carbon steel, while the breaking strength of vanadium steel is 50 per cent greater. All working loads are based upon elastic limit. The accompanying illustration shows a view of the exhibit which was prepared. The second bar from the top is a standard unpulled test bar with the smallest diameter of 0.505 inches and of sufficient length to mark a 2-inch gage length. This gage length is calipered as the tensile load increases and the load at which permanent stretch occurs, that is, when the 2-inch gage length will not return to 2 inches upon release of the load, gives the elastic limit in pounds per square inch when divided by 0.2, the cross sectional area corresponding to 0.505 inches diameter. The load required to break the bar, when divided by 0.2 gives the tensile strength. The ratio of the increase of the gage length at the breaking point to 2 inches is the percentage elongation. The ratio of the decrease of cross sectional area at the breaking point to 0.2 is the percentage reduction of area.

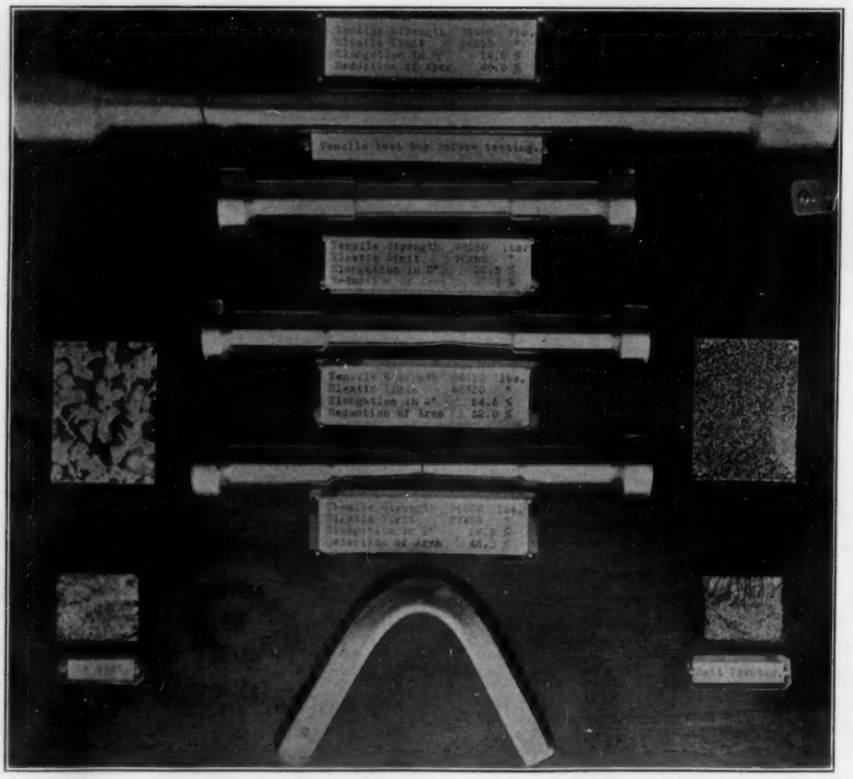
Fractured Specimens Shown

The third bar from the top was removed from the testing machine between the elastic limit and the breaking point to illustrate the extent of stretch to which this material may be subjected without failure. The bar shown fourth from the top is one actually broken in the testing machine and the properties shown on the card above represent actual results from similar bars pulled in routine tests. The topmost bar was made with an 8-inch gage length and was broken in the testing machine. Results of the test are shown above the bar. While the standard gage length is 2 inches, some specifications require tests on an 8-inch length. This specimen is shown simply for comparison.

Effect of heat treatment on the grain structure of vanadium steel is shown by the small square specimens at the lower left-hand and right-hand corners of the board. Photomicrographs of 100 diameters magnification are shown just above the specimens. The large irregular crystals of the left-hand sample are made uniform and dense by heat treatment as shown in the right-hand sample.

The Industrial Works uses vanadium steel in all vital castings such as large sister hooks, boom tension rods, equalizers, integral slewing shafts and pinions, jack beams on wrecking cranes and many hard worked gears or gears subject to severe wear on locomotive cranes. In their finished condition, all vital tension members are given proof tests to 50 per cent overload when ready to apply. For all castings requiring high strength in proportion to weight, great toughness, ductility and resistance to wear combined with normal machinability, the company uses cast vanadium steel produced in its own foundry under exacting conditions and especially heat treated for each class of service. Although contain-

(*Continued on Page 1233*)



TEST BARS AND SPECIMENS OF CAST VANADIUM STEEL. FROM TOP TO BOTTOM IN THE CENTER ARE AN 8-INCH TEST BAR; A 2-INCH BAR BEFORE PULLING; A BAR THAT IS NECKED; A BAR THAT IS FRACTURED; AND A BEND SPECIMEN. SPECIMENS AS CAST AND HEAT TREATED ARE SHOWN IN THE LOWER LEFT-HAND AND RIGHT-HAND CORNERS, RESPECTIVELY

The author is assistant to the general manager, Industrial Works, Bay City, Mich.

Using Electric Heating Furnaces

Exhaustive Survey of Electric Heat Treating Installations Provides Data for Recommended Design of Furnaces—Use of Electric Heat for Forging Units and for Cyaniding Still Is in Experimental Stage

BY A. E. WHITE

GOOD furnace construction and automatic operation and control are essential factors in successful heat treating. Therefore the problems of heat treaters are lessened according to the extent to which the furnace construction is sound and its operations made automatic and closely controlled. It is the purpose of this article to discuss furnaces, especially electric furnaces, and the part they play in heat treating.

Most heat treating furnaces are used for heating iron and steel. These are known as forging, carburizing, annealing, quenching and drawing furnaces. In the nonferrous field large numbers of furnaces are used for heating metal preparatory to shaping and for annealing.

Many forging furnaces use oil as the heat producing medium. Most of these furnaces have only one burner. The hearth area usually is small, frequently not exceeding 30 inches in width, 30 inches in depth and 8 inches in height. The furnaces are operated so as to bring the stock to the desired temperature in the minimum time and no appreciable consideration is given to furnace efficiency.

Operators of forging departments advise that considerable care is taken to prevent the metal from becoming burnt, but the frequency with which injured metal is found in succeeding operations indicates that the art of heating metal for forging purposes has not as yet been surrounded with adequate safeguards.

Electric Forging Units Sought

Attempts have been made to design electrically heated forging furnaces, but to date none can be considered successful. The metallic resistor furnaces designed for this purpose have failed because of the inability of the resistor to stand up successfully under furnace temperatures in excess of 1,800 degrees. There is need for a heating resistor that will successfully produce temperatures between 1,800 and 3,000 degrees Fahr. Several resistors have been advanced for this particular service. At this writing none appears to meet exactly the requirements. A number of companies are devoting considerable attention to the development of electrically heated forging furnaces. It is hoped that some one of these attempts will be successful, because there is a strong demand, even at this time, for furnaces in this field.

Furnaces for carburizing are of two main types. One is of such design that the work to be carburized is packed into boxes of either steel or a special alloy with the carburizing compound. This box and its contents are brought up to the desired heat which lies between 1,650 and 1,750 degrees Fahr. It is maintained at from 4 to 20 hours, depending upon the depth of the case desired. The other type of carburizing furnace is one in which most of the carbon for the case is obtained from the carbon monovide contained in the ordinary city gas supply.

Most of the furnaces of either type are fired with gas or oil. Oil is the predominating fuel. Strange as it may seem, few companies engaged in carburization keep daily cost records. Individual tests have been made from time to time, and as a result of these tests one is reasonably safe in stating that the efficiency of oil-fired carburizing furnaces, expressed in gross load, is between 5 and 10 per cent. The exact figure for one particular test was 6.9 per cent and for another test 10.25 per cent. The net efficiency probably lies between 2 and 2.5 per cent. The exact efficiency in one test was 2.25 per cent and in another test was 2.29 per cent.

There are few carburizing furnaces of the continuous type. In plants engaged in quantity carburization the continuous type possesses definite advantages over the stationary type.

Electric Heating Data Scarce

In one of the most recent, and almost the only installation of the continuous oil-fired type, the carburizing boxes pass through the furnace on rails placed on a downward slope of about 30 degrees. The boxes are assisted in their downward travel by a pusher mechanism. No records are available from this installation as to operating efficiency, but the stock treated in these furnaces has a very uniform core.

At this writing there are authentic data on only two electrically heated carburizing furnaces in operation in this country. These furnaces are engaged in the carburization of miscellaneous automobile parts. They are of the annular ring or doughnut type construction. They have proved satisfactory both with respect to the quality of work which they perform, and with respect to operating costs. In this latter connection the following data with reference to these furnaces for the month of April, 1924, may be of interest.

Total number of boxes	26,161
Weight, boxes and stock, pounds	3,270,125
Weight of stock, pounds	650,877
Total kilowatt-hours consumed	329,567
Average cost per kilowatt-hour	$0.0134
Total power cost	$4,426.10
Pounds of gross stock per kilowatt-hour	9.95
Gross load efficiency	86.6
Pounds of net stock per kilowatt-hour	1.97
Net load efficiency	17.4
Cost of power per pound of gross stock	$0.00135
Cost of power per pound of net stock	$0.0068

A careful analysis of the cost of heat expressed in terms of pounds of net product with this furnace installation, and with the average oil-fired installation, shows but little difference. The reason is not due to the fact that electricity as such, per B. t. u. value, is cheaper than oil. The explanation is that in the electric furnace installations just mentioned an excellent operating efficiency is obtained. For instance, the electric furnace operated at a gross ef-

Estimates 5 Per Cent of Steel Is Treated

MANUFACTURERS are beginning to recognize the importance of heat treating. The author of the accompanying article states that in the ferrous field alone at least 2,000,000 of the 35,000,000 tons of steel produced last year were heat treated. Most forgings and many castings are heat treated, as is all tool steel. Many of the important parts in automobiles and locomotives are heat treated.

The article beginning on this page, which deals with electric heat treating furnaces, is from a paper presented at the Detroit meeting of the American Electrochemical society, Oct. 2-4, 1924. The author is professor of metallurgical engineering and director of the department of engineering research, University of Michigan, Ann Arbor, Mich.

ficiency of 86.6 per cent and a net efficiency of 17.4 per cent.

Most annealing furnaces are of box type construction, a large percentage of them being oil-fired. Many of them are designed so that they can be used in heating for quenching or in heating for drawing as well as for straight annealing. A number of the larger sized furnaces are of car type construction, a design which is employed to a considerable extent for furnaces used in annealing steel castings.

The Snead electric method for annealing represents a recent development. It is mainly applicable on stock of the same cross section. It consists in passing an electric current through stock, and because of the heat developed as a result of the resistance which the stock offers to the passage of the electric current the stock becomes annealed. Two plants engaged in the manufacture of brass condenser tubes use this method of annealing. It requires an individual operation for each piece of metal. Less than a minute is needed for each anneal. At least one of the plants using this method advises that it can anneal stock as rapidly and at as low a labor charge as when they employ the common batch method for annealing. Unusual control is obtained by this treatment. The stock can be so treated that each of the pieces has substantially the same degree of temper. Also wonderful uniformity in grain size is obtained. It is a method which will doubtless be used on stock of uniform cross section to a constantly increasing extent, in order that producers may better meet the properly exacting requirements of the consumers.

Furnaces for Quenching and Drawing

Furnaces employed for quenching and drawing will be discussed under the same heading, for the reason that it is common practice to use furnaces engaged in heating for quenching, interchangeably with furnaces engaged in heating for drawing. The only change required when one converts a drawing furnace into a quenching furnace, or a quenching furnace into a drawing furnace, is a change of the temperature in the furnace. Most quenching furnaces operate at temperatures of from 1380 to 1550 degrees Fahr. and most drawing furnaces operate at temperatures of from 600 to 1200 degrees Fahr. with an appreciable portion of the drawing temperatures at from 1000 to 1200 degrees Fahr. Most of these furnaces are of box-type construction. A large proportion of them are oil fired.

The electric furnace is making rapid inroads into this field. The general designs of the electric furnaces employed are, box-type construction, reverse-flow construction, annular-ring or doughnut-type construction. Though we have only a few furnaces of the reverse-flow type, the general principle is one which seems to appeal to persons giving thought and consideration to economy of operation in heat treatment. They are rapidly finding favor. The doughnut type of construction also is admirable, inasmuch as it permits of continuous operation with little heat loss.

The efficiencies of the three electrically heated units of the doughnut-type construction showed respective values of 48, 59 and 77 per cent. The two lower efficiencies are doubtless due to operation at under-capacity. This statement is supported by the fact that one of them operated at 77 per cent efficiency, and carburizing furnaces of the same type operated throughout an entire month at a gross efficiency of 86.6 per cent.

Use of Electric Heat Expands Rapidly

RECENT years have witnessed a rapid growth in the use of electricity for industrial heating. One large central station, for instance, which showed no industrial heating load in 1914, *showed a yearly consumption of* 30 *million kilowatt-hours in* 1918 *and a load of* 60 *million kilowatt-hours in* 1922. *It expects a heating load of* 110 *million kilowatt-hours in* 1924 *and a load of* 150 *million kilowatt-hours in* 1926. *No other class of loading for this particular company has shown such a percentage increase. What is true of this company is, or could be, true of most of the other central stations located in industrial communities.*

Hump Furnaces Widely Used

Hump furnaces derive their name from the characteristics of the permanent pyrometer record. A properly charged furnace during the heating operation shows a hump when the critical point of the steel is reached. The operator is thus enabled to know when the stock has reached a suitable temperature for quenching. The need for a sharp detection of the critical point, especially in gear stock, is great. A temperature rise above the critical of only 50 degrees Fahr. may be sufficient to result, when the stock is quenched, in it becoming excessively warped. Such warpage results in undue expense for straightening or even, in some cases, in the complete scrapping of the stock. The furnaces are usually of small capacity. They seldom are over 16 inches deep and 24 inches in diameter. All are electrically heated and as a rule, they operate with excellent efficiency. From data which were procured at a recent test at one of the large automobile plants, efficiencies of 38.7 and 43.1 per cent were obtained with these furnaces when the stock was charged into a cold furnace. An efficiency of approximately 85 per cent was obtained when the stock was charged into a hot furnace.

Cyaniding consists of immersing steel in liquid potassium or sodium cyanide when at about 1575 degrees Fahr. The steel thus immersed becomes thinly carburized so that when it is properly quenched it possesses an extremely hard shell from 0.001 to 0.002 inch in thickness. Attempts have been made to heat these pots with electricity but so far without success. One of the main difficulties is that during cyaniding the salt is slopped over on to the resistor ribbon by the furnace operator with a resultant undue rapid deterioration in the heating coils.

Saltpeter and oil drawing furnaces as well as babbitt melting furnaces present possibilities for the application of electric heat. For the most part, however, these furnaces today are operated with city gas.

Essentials of Furnace Design

As a result of the study made of furnaces and conditions in many plants, a list of certain essentials for suitable furnace design is submitted.

1. *Length.*—For furnace of box-type construction the question of length should be carefully considered. One should keep in mind that the furnace length should not be so great as to produce in a furnace requiring uniform heat, considerable temperature difference at various sections along the length. This statement does not apply to furnaces of the counterflow design or to furnaces of the rotary or doughnut type of construction.

2. *Hearth cross section.*—The width and height of the hearth of all furnaces should be the least practicable. The wider the hearth the greater the temperature difference. In electrically heated furnaces, with heating elements on both sides of the hearth, it is possible to construct a furnace with a hearth 5 feet in width without injurious results. With oil-fired or gas-fired furnaces, with burners on one side only, hearth width should not exceed 3 feet.

Hearth height is a matter of considerable importance. It should probably lie between 6 and 36 inches. With electric furnaces, with the heating element on the side, considerable height will be necessary in order to obtain a proper length of resistor. With the heating

element on the sides and underneath, however, the hearth height can be considerably reduced.

3. *Heat difference.*—So far as it is practicable, it is desirable to keep the temperature at the heat source within 200 degrees Fahr. of the maximum heat desired for the stock. In some cases the temperature difference between the heat source and the heat in the stock should not exceed 100 degrees Fahr. during the whole heating cycle. This later arrangement is possible in electric furnaces, although the difference first mentioned is the one usually employed.

4. *Uniform distribution of heating elements.*—Heating units should be placed uniformly around the furnace. This is common practice for electrically heated furnaces and is done to some extent in gas-fired furnaces.

5. *Suitable furnace insulation.*—Practically all heat treating furnaces should be insulated so that the temperature at the outside of the supporting plates does not exceed 110 degrees Fahr. One automobile manufacturer requires all heat treating furnaces to be lined with at least 4½ inches of firebrick and with at least 12 inches of insulating brick, infusorial earth or a similar heat insulating substance. This manufacturer insists that the furnace walls shall be properly riveted and supported with plate at least ¼-inch thick.

6. *Suitable heat circulation within furnace.*—Furnaces should be so designed as to permit suitable heat circulation within the furnace. In any case, furnaces with solid hearths should be equipped with supports to permit heat underneath as well as on the sides and on the top of the work. Where possible the hearth should be of such design as to permit circulation of heat underneath it. In fact, supports should be used, even in conjunction with the hearths which are of such construction as to permit heat circulation beneath them.

7. *Freedom from obnoxious gases and fumes.*—Furnaces should be so designed as to provide maximum freedom from obnoxious gases and fumes.

8. *Freedom from excessive radiating temperatures.*—This matter was touched upon when it was suggested that the temperature at the outside of the furnace should in no case exceed 110 degrees Fahr. With a furnace insulated so as to operate under this condition, the workmen would have no more objection to working around the furnace in summer than they would have to operating a lathe.

9. *Accurate temperature control.*—The main essential for all heating operations is to reach a given temperature. In most designs this temperature should be the same in all parts of the furnace. In some of the earlier furnaces a temperature difference of at least 200 degrees Fahr. was found. That heating means, therefore, which provides the most uniform temperature, is the means which should be most favorably considered. Likewise furnace temperatures should be automatically controlled where possible.

10. *Resistors.*—In electric furnaces the resistors should receive careful consideration and attention. A few years ago there was a tendency to make them too thin. The result was that they were worn out rather rapidly. Today they are commonly made of metal 0.375 inch in thickness. As an auxiliary to the resistor is the resistor support. A careful study has been given to their designs and to the materials of which they should be made. The failure to satisfactorily meet both of these factors in the early days of the metallic resistor type furnaces, resulted in short resistor life. From recent observations it would appear that these objectionable features have been removed, so that one should find no difficulty in obtaining for these resistors and their supports, a life, with a properly designed and operated furnace, of from four to five years, or much longer, provided a reasonably low value of current density is taken.

The writer wishes to express his appreciation for the assistance of H. J. Hall of the Detroit Edison Co., and of Richard Schneidewind of the department of engineering research, University of Michigan. He also wishes to express his appreciation to the many other persons who have furnished him with information, data and other assistance.

Towne Will Provides for Industrial Museum

A great museum of peaceful arts, to aid in the development of American industry is to be built in New York through a bequest made in the will of the late Henry R. Towne, formerly head of the Yale & Towne Mfg. Co. The amount of the bequest is not yet known but the sum is estimated at approximately $2,000,000. The museum is to be built after the death of the testator's son, John Henry Towne, from the residuary estate, which is bequeathed to the son. In his will, Mr. Towne called attention to the fact that although the United States is the greatest industrial nation, "we do not possess any permanent exposition of American achievement in the peaceful arts, including agriculture, animal industry, forestry and woodworking, mining and metallurgy, transportation and communication, engineering and architecture, industrial chemistry, electrical mechanisms, aeronautics, textiles, building, including products, processes and implements." As a preliminary, the will makes immediately available the income from a trust fund of $50,000 which is to be used in a campaign to create a public understanding of the usefulness and importance of such an institute. Mr. Towne left trust funds of $50,000 to the Merchants association of New York, $50,000 to the United Engineering society of New York, $10,000 to the Franklin institute, $10,000 to the Penn Normal Industrial and Agricultural school of South Carolina, $10,000 to Lincoln memorial university of Tennessee, and $150,000 for the erection of a welfare building for employes of the Yale & Towne Mfg. Co.

Russians Place Orders for Oil Equipment

Reconstruction of the Russian oil industry may be the outcome of a two months' visit in this country by A. P. Serebrovsky, head of the leading Russian oil producer "Azneft", who sailed on the MAURETANIA from New York Oct. 21. He said that trial orders of American oil plant equipment involving $1,000,000 had been placed since his arrival here and that many more and larger orders can be expected. He revealed that the negotiations being conducted by the Sinclair interests with the soviet authorities at Moscow for the construction of a pipe line from Baku, on the Caspian Sea, to Batoum, the Black Sea port, are proceeding favorably. It is proposed, he said, that the Sinclair interests shall defray $20,000,000 of the total cost of $40,000,000 for this pipe line and a refinery to be constructed at Batoum by Sinclair. The Soviet government would defray the other half, he said.

Zinc Output Increases

Primary zinc produced in the United States in 1923, according to the geological survey was 510,434 short tons, the largest output in five years. Of this only 2099 tons was from foreign ore. Detail of the sources of ore is as follows, in short tons:

	1920	1921	1922	1923
Total domestic	450,045	198,232	353,274	508,335
Foreign:				
Canada	1,583	521	55	....
Mexico	8,978	1,614	948	2,099
South America	536	....	....	....
Europe	....	....	....	....
Australia	2,235	133	....	....
Total foreign	13,332	2,268	1,003	2,099
Total primary	463,377	200,500	354,277	510,434

In addition to primary zinc smelters in 1923 produced 549,868 short tons of distilled and electrolytic zinc, the largest total in more than six years.

Iron Output and Price Related

Blast Furnace Index Applied to Pig Iron Quotations Over Period of 27 Years, Offers Guide As To Future Fluctuations of Cycle—Tops and Bottoms Diverge—Prices Lag at Start of Recovery

BY LEONARD P. AYRES

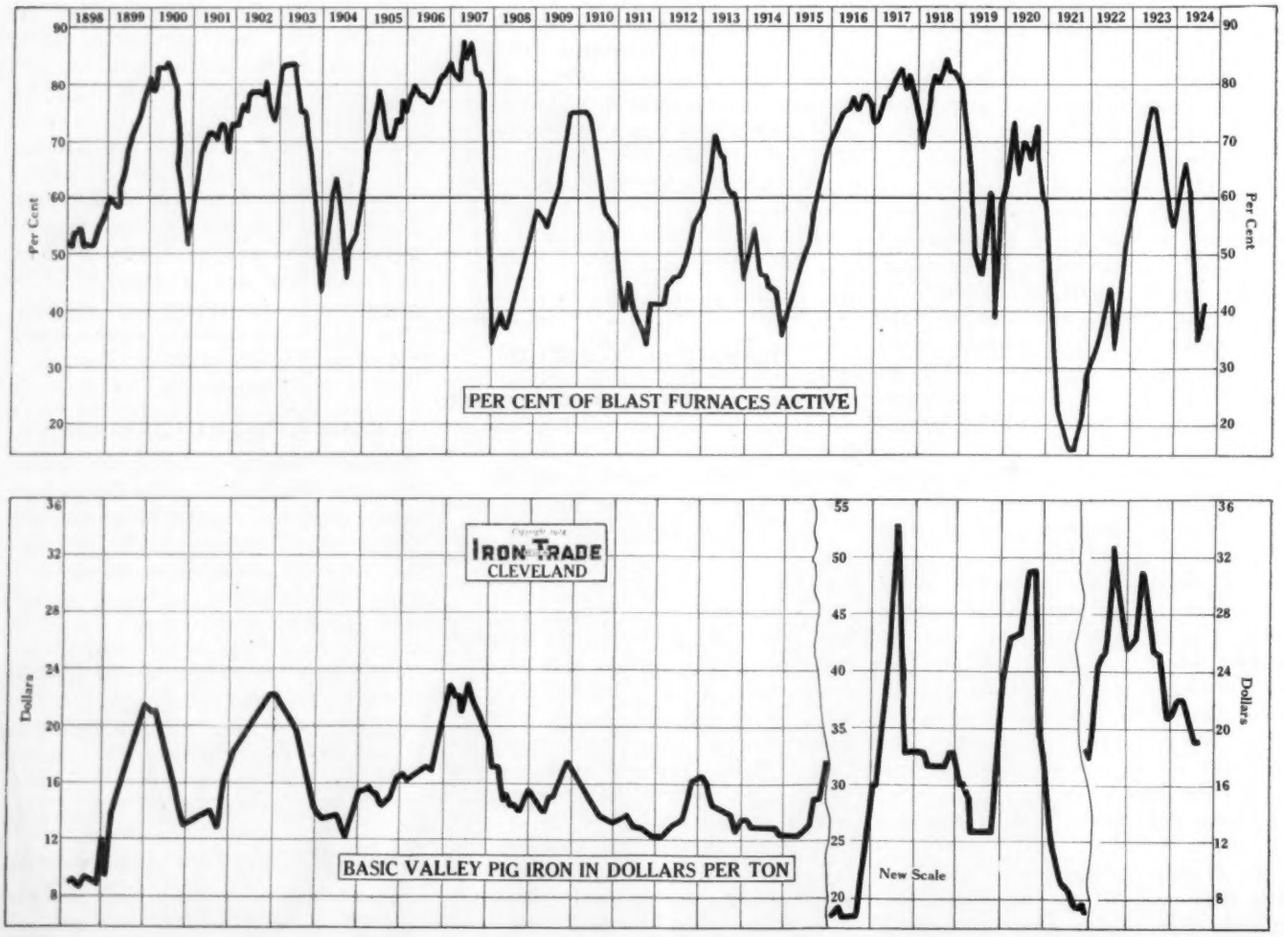
SUCCESS in the iron and steel industry, as in many other industries, is dependent on skill in prophecy, as well as in efficiency in production. To have a soundly-reasoned policy for increasing output or curtailing it, and a well-thought-out basis for the placing of contracts involving the purchase of materials and the sale of products, may be quite as important as to have modern plant and efficient operation.

In this industry there are production cycles which carry volumes of output to high levels in periods of prosperity, and to low ones in times of depression. Accompanying these cycles of volume are swings of prices, and there are fairly definite relationships which exist between the two. The relationships between the activity of blast furnace operations and the market price of pig iron over a series of years are illustrated in the accompanying diagram. These relationships offer a guide of what to expect in the fluctuations of the swings or cycles of production and prices.

The line in the upper part of the diagram shows the percentage of all blast furnaces in blast each month during the past 27 years since the beginning of 1898. This curve is known as the blast furnace index, and is proving useful both as an accurate measure of general business as well as of security movements. It was described in some detail in the July 3 issue of IRON TRADE REVIEW.

The average percentage of furnaces in operation, taking good times and bad, has been about 60, and the line at the 60 level has been drawn heavier than the other lines to indicate that this may be considered to be about the normal ratio. In times of prosperity more than 60 per cent of all the blast furnaces has been operated, while in times of industrial depression less than 60 per cent of the furnaces has been active.

The curve in the lower part of the diagram represents the changes in the market price of basic pig iron, valley furnace in dollars per ton over the same period of years. In general the relationship between the movements of these two lines has been fairly close. In times of industrial prosperity, when more than 60 per cent of the furnaces has been active, the price of pig iron has been high, while in times of adversity when



THE DIAGRAM DISCLOSES THE CLOSE KINSHIP EXISTING BETWEEN PIG IRON OUTPUT AS MEASURED BY BLAST FURNACE ACTIVITY AND PIG IRON PRICES. PRODUCTION USUALLY RECOVERS BEFORE QUOTATIONS ADVANCE

less than 60 per cent was producing, the price has been low.

The most striking feature of the diagram is that the tops and bottoms of the two curves do not coincide in time. Without exception the upturns from the bottom in the furnace line have come before those in the price curve. This indicates that when the recovery in demand has come, after a period of depression, producers of pig iron have blown in their furnaces and increased output so rapidly that prices have declined still further. As a result the price recovery has been postponed. The length of postponement has always been several months and in some instances more than a year.

A similar maladjustment between demand and supply occurs at each peak of prosperity. At such times the furnace operators have continued to increase production even after pig iron prices have turned and started downward. Plainly the first hint of price softness after a period of good times, is a warning signal to producers who have their ears to the ground. Those who heed the warning promptly and blow out their furnaces will not continue to pile up high cost inventory to be liquidated in a falling market.

The fluctuations in the selling prices of iron have been great. In the eight large major swings represented in the diagram the advances have ranged from 21 per cent, in the relatively small advance of 1909, to 322 per cent in the tremendous war advance from 1915 to 1917. The average advance from the bottom levels to the peaks of the periods studied has been 72 per cent.

What of the Future?

The lower diagram representing the course of prices, is broken between 1916 and 1918 and a new scale is introduced to take care of the tremendous change in price levels which followed the outbreak of the war, and which more than doubled the market quotations. The old scale is replaced at the beginning of 1922 and carried down to the present.

What conclusion is to be drawn as to the course of pig iron prices in the immediate future? At the present time iron prices are depressed, and blast furnace operations have been sharply increased in the last two months. In August all of the furnaces that resumed production were connected with steel plants. In September, however, a number of the merchant furnaces resumed activity also. It seems probable that pig iron prices will remain low for some months to come. It would not be surprising if they should decline somewhat further, for it seems likely that the sharply increased supply will once more exceed demand for a time in this period of recovery, as it has regularly done in previous periods. A little later on a long upward movement of prices is to be expected.

True Also of Steel

What is true of pig iron prices is found to be true also of steel prices. The shading of quotations in the face of marked enlargements of output, after a period of depression, is a familiar phenomenon in the trade. Following the panic year of 1907 the iron and steel industry, as measured by pig iron production, began to recover in July, 1908. Activity continued strong until the spring of 1910. Yet the price of steel bars, Pittsburgh, which had been at 1.60c per pound in 1907, declined steadily until it reached 1.15c per pound in April, 1909. From that point recovery began which carried the quotation up to 1.50c by January, 1910.

Similarly, in 1921 the low point of the depression in general business and in the steel trade came in July. From that point there developed a long-sustained recovery. But the price of steel bars did not touch its low point until February, 1922, or eight months following the bottom level of production. IRON TRADE REVIEW's composite market average of 14 iron and steel quotations also touched its lowest point in February, 1922, and started its upward climb from that point.

At the ebb of a major recession a large share of steel mill capacity is reduced to idleness. When the turn comes, and demand begins to expand, productive capacity begins to swing into operation rather rapidly. Producers, starved for business, indulge in keen competition for tonnage, and buyers are at an advantage. As mill books become more comfortably filled with orders and demand continues to grow, prices must inevitably advance in order to bring the higher-cost plants into operation. There is every reasonable assurance that the recovery now under way will be a fairly long sustained one, and that prices for steel products, as well as for pig iron, will reflect the improvement in the not distant future.

New Price Guide

COL. L. P. AYRES, vice president of the Cleveland Trust Co., Cleveland, is one of the foremost statisticians and business economists of the country. His recently devised Blast Furnace Index of general business, based upon the percentage of blast furnace activity as reported each month by IRON TRADE REVIEW, *has attracted nationwide interest. By means of this index, described in detail in the July 3 issue of* IRON TRADE REVIEW, *it is possible to measure the position of industry in the business cycle at any given time. It is used by the Cleveland Trust Co. and other important financial institutions as a guide for studying business prospects and for making large-scale investments. In the accompanying article Col. Ayres shows how the Blast Furnace Index may profitably be used by producers and consumers of pig iron in gaging the probable future course of pig iron prices.*—EDITOR.

Vanadium Steel Shows Strength in Test

(*Continued from Page* 1228)

ing only about 0.16 per cent of vanadium, the strength and toughness of the steel are increased greatly. Ordinary carbon steel when unannealed runs 30,000 to 40,000 pounds per square inch elastic limit and 60,000 to 70,000 pounds per square inch tensile strength. As annealed the carbon steel runs 40,000 pounds per square inch minimum elastic limit and 70,000 pounds per square inch minimum tensile strength, and with ordinary heat treatment both these properties are increased 5000 pounds.

The vanadium steel on the other hand, runs about 65,000 pounds per square inch minimum elastic limit and 95,000 pounds per square inch minimum tensile strength. However, values of 75,000 and 100,000 pounds per square inch, respectively, are secured regularly.

Use of manganese steel for hard wearing propelling gears has been suggested but gears made from this material are expensive and exceedingly difficult to machine so that even with uncut undercar gears it would be necessary to resort to soft steel bushings or segments dovetailed in to provide for machined surfaces. About 2 years ago experiments were conducted with a specially oil quenched vanadium steel for this sort of service. To date little wear has developed and no replacements of gears made from this

material have been necessary. Test bars indicated a tensile strength of 127,250 pounds per square inch and an elastic limit of over 100,000 pounds per square inch. No trouble has been found in machining. The metal is tough, close grained and shows remarkable resistance to wear. It is interesting to note that these physical properties exceed by a considerable margin those which are specified in connection with the purchase of special chrome nickel bars for studs and high duty shafting.

Will Study Fatigue and Magnetic Properties

Frequently the statement is made that failure in steel by repeated stresses is accompanied by a corresponding change in magnetic properties. Since there is no record of any verification of this statement, the bureau of standards, Washington, is undertaking to study the effect of fatigue on the magnetic properties of steel. Preliminary experiments have been made using a rotating beam machine of the Farmer-type, but as this machine appears to be unsuitable for the purpose, a Haigh-type alternating stress machine has been obtained for the work. This machine is electromagnetically operated and applies repeated cycles of axial stress to the specmen under test.

Brick Is Purchased by Specification

BY L. S. LONGNECKER

A LIST of buying specifications for silica brick and shapes now is being used by a large steel corporation with satisfactory indications of producing profitable returns. With no standard buying guide available it frequently is difficult to convince a producer wherein the material is unsatisfactory even though he contends the material is of first quality. First class material produced by one manufacturer is not always of the same quality as that produced by another manufacturer and for this reason the term first class is elusive and indefinite.

A tentative set of specifications based on a summation of available brick data is presented elsewhere. The data includes actual service records, experimental mill tests, information presented by research laboratories, etc. Such a list of specifications indicates to the manufacturer many important points by which the consumer finds the service life of his silica materials is most seriously influenced. The accompanying specifications include the main deciding qualities that affect, to a large degree, the service life of the refractory when used in steel mill practice. The qualities are rated and presented in such form that with the present available mill laboratory equipment they can be determined quickly. Experience shows the better a refractory material meets this standard the better and longer service life it will be capable of producing.

The apparent specific gravity test has been determined by several research laboratories as being the best practical test for finding the degress of hardness of the burn of a brick. Tests have shown that underburned and improperly burned bricks give poor service due to spalling and irregular linear expansion. Laboratory tests further indicate that a well burned brick, with spalling and expanding weaknesses reduced to a minimum, should have an apparent specific gravity below 2.36. Tests on numerous brands of brick, which had an apparent specific gravity above 2.36 gave unsatisfactory results. Brands with the apparent specific gravity below the specified value gave the usual satisfactory service record.

Tentative Buying Specifications for Silica Bricks and Shapes

1. The apparent specific gravity shall not be above 2.36 for Eastern brick (Medina quartzite) and 2.38 for Western brick (Baraboo quartzite).
2. The apparent porosity for 9-inch series shall be 27 per cent with a plus and minus tolerance of 2 per cent; and for special shapes 22 per cent with a plus and minus tolerance of 2 per cent.
3. Physical condition.

A. No appreciable crosswise warpage shall be allowed.

B. Lengthwise allowable warpage shall not exceed ¼ inch warpage on bricks 12 inches long or under, and ¼ inch per foot warpage on brick over 12 inches as shown by an applied straight edge.

C. Not over 10 per cent of material shall show this maximum allowable warpage.

D. All contact surface irregularities shall be considered as warpage.

E. All bricks and shapes shall be, as far as commercially possible, true to size, with particular emphasis placed on *width* and *radial dimensions* of arch material and on *thickness* for straight wall materials. If no special limits of tolerance are shown on the drawings, the allowable variation shall be ⅛ inch per foot over or under size as shown in the drawings; except that on dimensions of 8 inches or under, the variation may be ⅛ inch over or under specified size.

F. Cracks on end and side surfaces shall not exceed 1 inch in length.

G. Cracks on all face surfaces shall not exceed 3 inches in length.

H. No cracks of any serious depth, width or length shall be allowed.

I. All corners and edges shall be sharp, well made, and in good condition unless specified otherwise.

4. The chemical analysis shall conform to these limits. The silica shall not fall below 95 per cent; the combined percentage of alumina and iron shall not exceed 2.5 per cent; the alkalies shall be below 0.5 per cent; the lime content shall be above 1.5 per cent and below 3 per cent.
5. The modulus of rupture must be in excess of 500 pounds per square inch.
6. Under hammer test all material shall produce a good clear ring. Material with a "punky" ring shall be rejected.

Vapor Affects Brick Life

The service life of open-hearth brick is affected largely by the volume of basic slag vapors coming in contact with its surface. These vapors lower the fusing point and, consequently, the refractory power of the brick. If the brick are porous the slag will be arsorbed and thus cause failure of the inside structure. Preliminary tests show that the apparent porosity should be within a range of 20 to 24 per cent for 9-inch brick and within a range of 25 to 29 per cent for special shapes. This value also is a direct control of the grind which is important because of its influence on the internal structure of the brick. Brick manufactured from coarsely ground material has a weak, open structure and generally fails when subjected to furnace conditions. Clause No. 3 in the specifications entitled physical conditions was prepared after consulting steelmakers familiar with the mill requirements of silica refractories. The values on warpages and cracks are considered as the maximum which can be allowed without sacrificing too large an amount of service life.

The refractory power of brick is affected considerably by the chemical makeup. The heat resisting power of a

silica refractory lies in its silica content. If the percentage of silica decreases the quality of the refractory suffers. An excessive fluxing behavior of a brick usually is the result of too large a combined content of alumina, iron and alkali. The best chemical limits, according to research data, are that silica shall not analyze below 95 per cent, the combined percentages alumina and iron shall not exceed 2.5 per cent, the alkali shall be below 0.5 per cent and the lime content shall be above 1.5 per cent and below 3 per cent. Brick made according to this chemical analysis have given good results.

Recommends Strength Test

All brick and shapes must have a certain amount of load carrying strength. The modulus of rupture test has been recommended by research authorities as the best strength test; they indicate a modulus of rupture limit as a figure which must be in excess of 500 pounds per square inch. Brick and shapes passing this strength test will have a strong bond which reduces to a large extent any premature furnace failures. The final test for determining any materials with broken or defective interior structure is the hammer test. This is somewhat of a safety test covering any and all defective materials.

With a silica brick standard similar to that presented, it is possible to check all incoming material and keep records on file, so that when the service behavior of any given materials are unusual the service record can be compared with the brick standard records. A conclusion then can be reached concerning the item which caused this unusual behavior. By this method, therefore, the records kept on the brick during the manufacturing process and those kept on the material under actual service conditions can be combined. The joint records thus will serve as a history of a refractory material from the quarry to the brick bat dump pile. When sufficient combined records have been secured the tentative specification then can be changed into a finished set of specifications which will serve steel mill practice. The consumer then can determine what grade of refractory he requires and can order accordingly.

Discusses Use of Safety Bonus in Mining

In a serial, "The Safety Bonus in Metal Mining", issued recently by the bureau of mines, Washington, the author, F. C. Gregory, mining engineer for the bureau, outlines four different safety bonus plans now in operation in metal mines and which are applicable to coal mining, oil field work and other mineral industries. The safety bonus is a sum in addition to the regular wage paid to foremen or bosses for keeping the accident rate below a specified limit. It has been used with success for some time by certain companies as a regular part of their safety work and is desirable from the employer's point of view in that the desired results in accident reduction must be accomplished before the bonus is earned; and from the standpoint of the recipient, in that he receives a reward for the additional effort which he has put forth in order to earn the bonus.

Where it has been tried out, the safety bonus has furnished the needed stimulus to the bosses to keep them constantly interested in keeping the accidents at a minimum. The boss is impressed by the fact that the management will pay him cash for helping to keep his men from being injured and as a result of his desire to earn the bonus, he will put into his work the extra effort necessary to see that the men protect themselves.

Reviews of New Books

Metals Under the Microscope

Structural Metallography, by H. B. Pulsifer, cloth 210 pages, 6 x 9 inches, published by the Chemical Publishing Co., Easton, Pa., and furnished by IRON TRADE REVIEW for $5 postpaid.

Pictures present to the eye more information in much less time than many pages of text. When the pictures are interpreted so that the image in the eye may be understood, the fullest aim of teaching is met. This volume is an illustrated text with laboratory directions for students. Its purpose is to give beginners an introductory text presenting as clearly as possible the science of metallography. The assertion is maintained that every piece of metal has a determinable internal structure and on these internal parts, their arrangement and physical integrity, depend the properties and utility of the metal. Unusually profuse illustration by photomicrographs indicates what may be attained by the student in his search for the inner secrets of metals as a guide to their qualities.

* * *

Manual for Executives

Management's Handbook, by a staff of experts, L. P. Alford, editor; leather, 1607 pages 4¼ x 7 inches, published by the Ronald Press Co., New York, and furnished by IRON TRADE REVIEW for $7.50 postpaid.

A second printing of this manual attests its fitness to the purpose for which it is designed. It seeks to place between one set of covers as much as possible of the classified knowledge and practice of management in manufacturing industries. The authors frankly state in constructing this volume they have followed those features of engineering handbooks which have received general approval.

The book is divided into three parts. The first is devoted to information of a general character, charts, statistics and mathematics. These are matters of frequent reference and usually available in scattered sources. The second part is made up of established management functions methods and mechanisms, plant layout, office management, operation study, simplification and standardization and kindred problems. In the third group the editors cover basic information, the economic principles underlying industry, budgetary control, analysis of markets, methods of classifying and filing management information.

Much subject matter is included which might be classed as purely administration and organization. This broadens the scope of the treatise and renders it the more comprehensive.

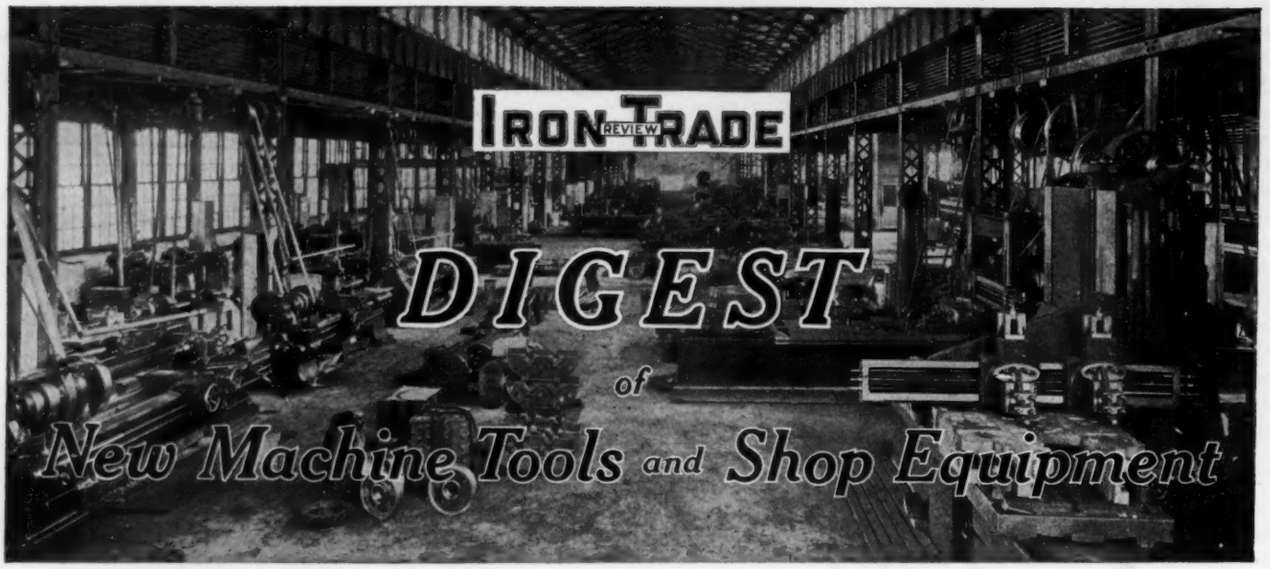
* * *

Mine of Information

Machinery's Handbook, leather 1592 pages 4¼ x 6¾ inches, published by The Industrial Press, New York, and furnished by IRON TRADE REVIEW at $6 postpaid.

The sixth edition of this well known compendium has been revised and enlarged, 230 pages being added, including 97 new tables, various new illustrations and hundreds of minor revisions, bringing it to date in a complete way. Readers and users of the handbook through past years have assisted greatly in its editing by suggestions, all of which have been followed when practicable. The present edition contains much material suggested and requested by these letters.

Any attempt to recite the subjects covered in its pages would involve too long a list. It is designed to be a complete manual of essential data and fundamental principles for the machine building industries.



Distribution Is Tool Builders' Problem

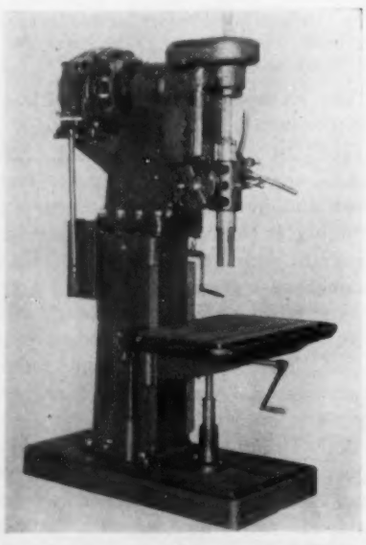
WITH the Fall exhibitions and conventions again in the background and with the election over, machine tool builders are inclined to go more deeply into some of the problems now before the industry. Most of them undoubtedly have come to the conclusion that the road to complete recovery of business is long, although much better defined and more certain than it appeared a year ago.

One of the most important of these problems is distribution, and in this respect the machine tool industry is in a predicament shared by many other branches of the metalworking industries. Many manufacturers are suffering because their study of methods of selling

Handles High Pressure Drilling

No. 197

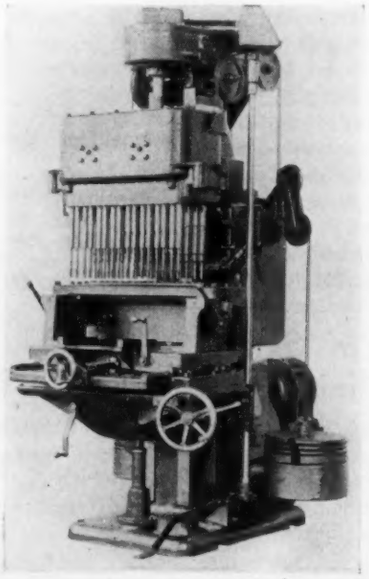
The Barnes Drill Co., Rockford, Ill., recently has placed on the market an all ball bearing, self-oiled, geared drilling and tapping machine for use in quantity production work. It is a multi-purpose machine with a wide range of feeds and speeds. Take-off crown gears provide for any single speed from 100 to 2000 revolutions per minute, thus handling all high speed twist drills from ⅜ to 1½ inches at their maximum working speeds. Slip gears make available a number of feeds to suit the tools being used. The spindle is provided with six splines thus eliminating the need for keys. The box column is of sturdy design and has the head bolted to it. The head is a unit in itself, containing all the working parts including a pump for the self-oiling system. The coolant pump is located in the base. A 5-horsepower direct-connected motor is used.



Introduces Multiple Spindle Unit

No. 198

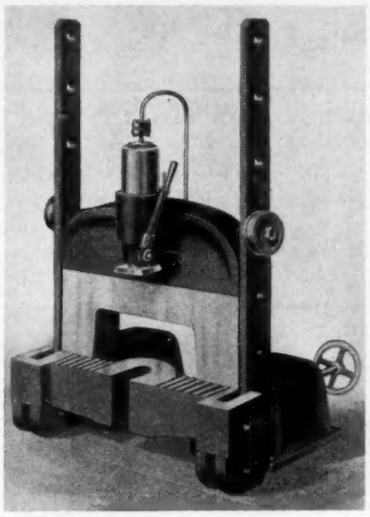
The Defiance Machine Works, Defiance, O., has announced the design of a new multiple spindle, fixed center valve hole drilling machine for boring, reaming, counterboring and spot facing in gas engine production. The machine shown has 32 spindles, however, fixed center heads can be made for any number of spindles including a head carrying adjustable spindles in a straight line with 30-inch maximum and 2-inch minimum distance between centers. The feed mechanism is driven from the driveshaft through hardened steel gears with a clutch arrangement. Rigidity is insured by the heavy table and column, the table being of either knee or box type and adjustable vertically through a jack screw and crank lever. The box-type table is provided with T-slots. Unit type construction is employed with the head, feed and speed box in separate units.



Press Performs Many Operations

No. 199

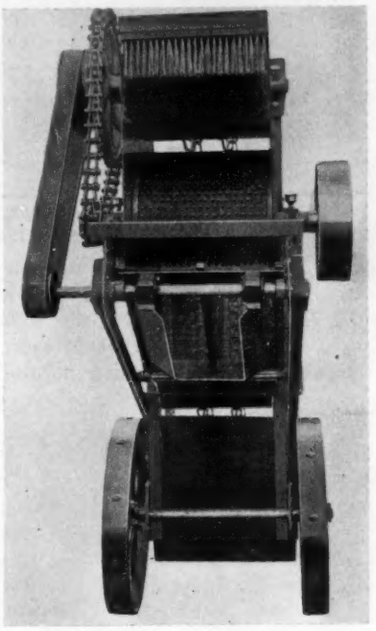
The Watson-Stillman Co., New York, has developed a general utility shop press which combines in one unit a vertical press for forcing, bending, straightening, pressing, etc., and a horizontal press for all the operations ordinarily done on a press of this character. It includes a 60-ton pipe bender, a 60-ton shaft straightener, 60-ton die sinking and upsetting press, a 60-ton vertical forcing press, a small hand power arbor press, a 7-foot horizontal forcing press and a 60-ton horizontal forming and bending press. Conversion from a vertical to a horizontal machine is accomplished by a handwheel, without the use of a crane or jack. Hydraulic pressure is used only for the high pressure stroke of the ram. The idle portion of the forward stroke and the return movement is effected by a pinion which meshes with a rack in the ram. The press is furnished with a hand pump, hydraulic gage, pipe and connections. It may be operated also by a small power pump.



Portable Equipment Aerates Sand

No. 201

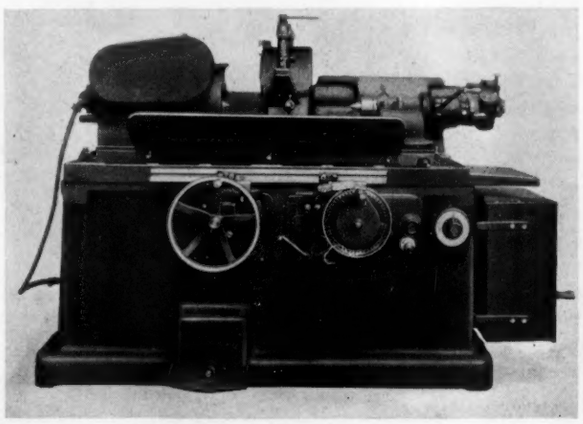
The National Engineering Co., Chicago, has developed a portable foundry machine which aerates and riddles sand in one operation. It is claimed this machine produces sand fluffy in texture and of high moldable quality. The apparatus consists of a feed hopper containing a coarse screen for eliminating gaggers, wedges, or large pieces of scrap; an aerator roll; and a fine screen for the final riddling of the sand. The principle of the aerator roll is a pegged cylinder revolving against an opposing wire brush. The cylinder is of cast iron with holes drilled in for the insertion of flat headed hardened rivets. The rivets are held in by a backing plate removable for replacing rivets. The wire brush opposing this roll is made in four sections. The machine will handle facing sand, core sand, brass foundry sand and heap sand.



Grinder Uses In-Feed Principle

No. 200

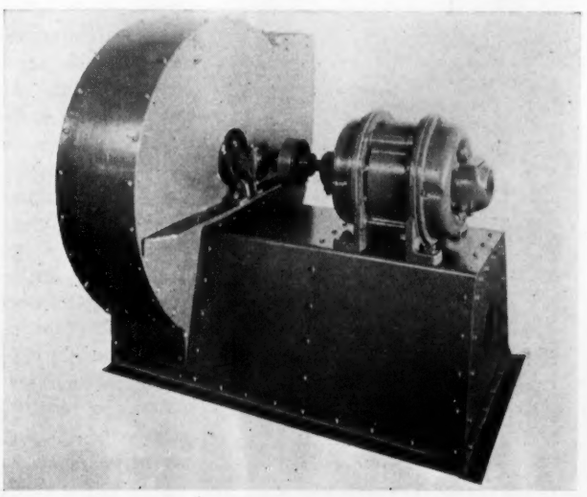
The Cincinnati Grinder Co., Cincinnati, recently has introduced a wide wheel in-feed grinding machine with a reciprocating spindle and adapted to diversified operations. Grinding is done by directly feeding into the work with a wheel, the face of which is sufficiently wide to cover the entire surface being ground, or if the work is wider than the wheel, by infeeding along the work at successive intervals, the face of the wheel slightly overlapping each previous cut. The design principle embodies a fixed wheel base and a movable work table. The operator can reach any of the control levers from his normal grinding position. With the various motors, shafts and driving mechanisms mounted inside the machine, the drive is self contained. The unit system of construction is employed.



Exhauster Unit Is Direct Driven

No. 202

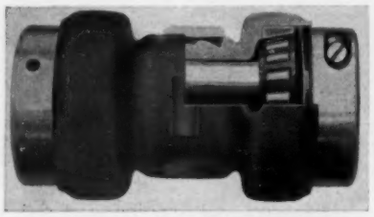
The Northern Blower Co., Cleveland, has designed a direct-driven, slow speed exhaust fan with the motor mounted on a base built integral with the fan. The housing for the fan is made of heavy steel plate with the sides riveted to angles and the scroll sheet, which is removable, fastened to the angles with screw caps. The wheels are built on a spider of heavy structural T-sections cast into the hub, the blades being riveted to the T-sections and to a cone-shaped back plate. Bearings are self-aligning and self-oiling. Felt washers at the bearings keep out dirt and dust.



Lineshaft Bearing Has Five Parts

No. 203

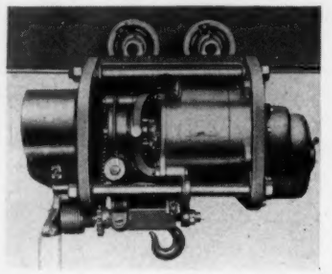
The Dodge Mfg. Corp., Mishawaka, Ind., has announced a lineshaft bearing having five parts to the assembly. It consists of two tapered roller bearings mounted on a ground and slotted steel tube and fitted to an accurately machined housing. The ends of the tube are threaded to receive clamping collars to secure accurate adjustment of the bearings on the tube. Liberal grease compartments are provided inside the housing and outside the tube.



Hoist Requires Minimum Headroom

No. 206

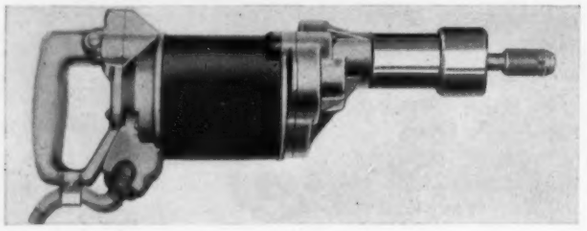
The American Engineering Co., Philadelphia, has designed an electric monorail hoist in half and 1-ton sizes and requiring minimum headroom. The hook can be drawn up almost to the rail. Automatic holding and lowering brakes are provided and a safety device checks the hoist and throws off the current when the upper limit is reached. The safety factor is high.



Screw Driver Has Friction Clutch

No. 204

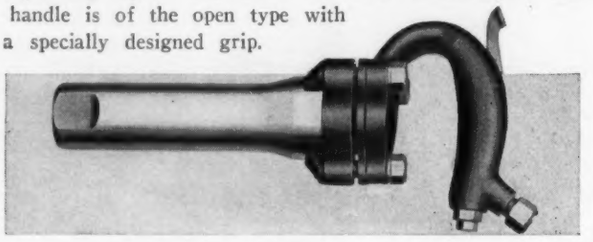
The Hisey-Wolf Machine Co., Cincinnati, has designed an electric screw driver which has a friction disk clutch adjustable automatically according to the pressure applied by the operator. It is ball bearing throughout.



Chipping Hammer Has High Speed

No. 207

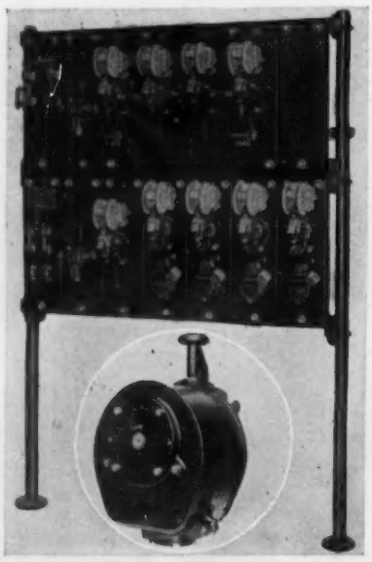
The Ingersoll-Rand Co., New York, has developed a high speed chipping hammer for chipping and cleaning castings and high carbon and alloy steel billets. It is made in two sizes, one having a stroke of 2 inches and the other 2 7/16 inches. Operating speed has been increased materially. The handle is of the open type with a specially designed grip.



Controller Is of Time-Limit Type

No. 205

The Cutler-Hammer Mfg. Co., Milwaukee, has developed a time-limit type controller to be used with steel mill auxiliary machines requiring uniform periods of acceleration. The starter utilizes the inductive principle, a transformer being used to control the time of acceleration. There are no moving parts other than the reversing switches, main magnetic switches and the accelerating switches. Through the transformer a holding out current of transient nature is obtained in successive accelerating switches. Transfer of connections takes place automatically with the cutting out of successive steps of resistance without disconnection of the coil circuits. Adjustments for timing are made on the stationary parts and therefore are permanent. The view shows a control panel and master controller.



Machine Notches, Shears and Bends

No. 208

The Whitney Metal Tool Co., Rockford, Ill., is manufacturing a combination tool for notching, shearing and bending angle iron. The notcher, shown at the top, is built to withstand hard usage and has all wearing parts hardened. The angle is held in position by means of a screw clamp. The punch enters the dies by a special pilot so that the punch always will travel true with the die. An inserted tool steel shearing blade is used. The bending attachment also is strongly made and is designed to hold the angle iron in the proper place for bending by means of a screw clamp against a solid jaw. The shear shown at the bottom has a capacity for 2 x 2 x ¼-inch angles and is so designed that it will shear without clamping. By an eccentric gear arrangement the applied energy is distributed over the cutting surface. Die changes are unnecessary in this unit.

and distribution have not kept pace with their achievements in the fields of operation and production.

Efficient distribution involves a keen knowledge of markets. Unfortunately data on the consumption of iron and steel products is woefully inadequate, making it almost necessary for the student of distribution to confine his knowledge to what little information he can obtain through experience.

More Information Is Available

Possibly this explains a number of inconsistencies in the attitude of machine tool builders on their consuming markets. Many of them attach extreme, and of course merited, importance to the railroad and automotive industries as purchasers of machine tools. Because these industries are well organized and information concerning them is more easily available, machinery manufacturers are better informed on the problems of distribution to buyers in these fields than to those of any other machine tool consuming group.

For instance, little is known of the purchasing power of the thousands of machine shop and metal working establishments of the country which are not indentified with any particular major branch of industry. They are not classified as part of the automotive group, of the railroads, or of the rubber, textile, cement or other industry, yet in the aggregate they constitute a market far more important than that existing in many of these more compact, better defined and therefore better known indsutries. The buying of tools by this group of miscellaneous manufacturers probably is more uniformly distributed in point of time than that of any of the more "showy" purchasing groups. Standard machines are in greater demand than specialized equipment. Competition is less keen owing to the fact the prospects are not cultivated as closely as are the prospects among the large industries.

However, desirable as is this business, it not always is easily sought efficiently. Owing to the infrequent purchasing of many of the smaller plants and their distance from the principal distributing centers, contact between seller and prospective buyer is not as satisfatcory as it should be. Naturally this condition cannot be remedied until more is known of the market represented by this class of miscellaneous plants. Therefore in studying problems of distribution, machine tool builders will do well to consider the small and medium sized users, and not to confine too much of their selling effort to the closely knit industries.

* * *

Although an unusually large number of new machine tools and shop equipment were announced in October, the tendency toward sharp departures from conventional design is less marked than in the previous month when distinct new features were incorporated in several machines. The increase in the volume of new equipment is a natural development which annually follows the vacation and convention season.

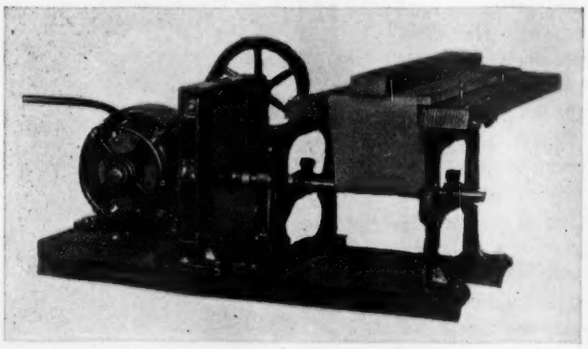
Many New Tools Announced

Activity in the design of drilling and grinding equipment again is indicated in the new machines announced during the past 30 days. The high production drilling and tapping machine, described as No. 197 and built by the Barnes Drill Co., illustrates not only the sturdy construction that can be obtained by using a heavy box column, but also the compact arrangement of drive, head and spindle resulting from the use of a flexible coupling and close connected motor. This drill also is equipped with ball bearings and alloy steel gears, items which are appearing more

Builds Machine for Core Testing

No. 209

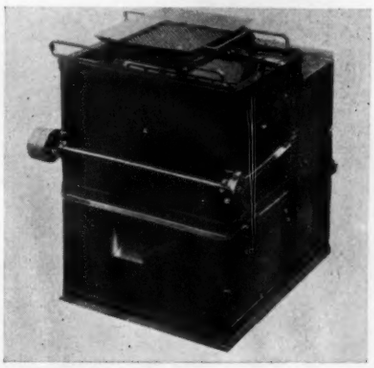
The Reynolds Electric Co., Chicago, recently has introduced on the market a motor-driven machine for the mechanical testing of sand cores. The apparatus consists of a motor, reducing gears and a shaft which is connected to the driving mechanism by means of a slot similar to that of a camera reel. It also includes a wooden platform on which the core plate is placed, this platform having four pegs to support the plate. The core to be tested is made on a piece of waxed paper placed on top the core plate, one end of the paper being made to hang over for some distance. The core plate is then placed on the platform and the overhanging end of paper is inserted in the slot in the shaft and the motor started. As the paper winds up the core is pulled forward at a slow rate until the overhanging end of core breaks off. The break-offs are caught and weighed. The shaft is provided with a special coupling by which it may be cut and the paper thereby removed.



Cleans Case Hardening Compounds

No. 210

The Brown Lynch Scott Co., Monmouth, Ill., has placed on the market a machine for cleaning and grading carburizing compounds. Pots containing case hardening compounds may be dumped, either hot or cold, into the hopper at the top of the machine. The hopper is agitated mechanically and the compound drops into the machine where it passes over sieves that take out the remaining particles of scale, slag, clay and other foreign material. Dust and fine particles settle to the bottom of the machine where it is removed readily with a shovel or it can be removed by connecting the machine to a suction system. In either case dust is eliminated from the shop. The hopper at the top also serves an important function in separating the heat treated steel from the compound when the pots are dumped in hot, providing the steel can be so handled. The hopper quickly removes the compound after which it can be rolled over to the side of the machine and the steel dumped into a quenching vat. The capacity of the apparatus is approximately 1500 pounds per hour. Screeens can be provided with any size of perforations. Cleaned compound is delivered at a spout in front.



Builds Instrument for Gear Testing

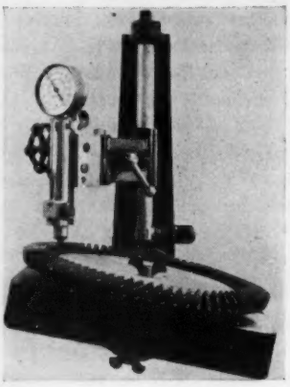
No. 211

The R. Y. Ferner Co., Washington, is introducing a gear testing machine built by the Societe Genevoise d' Instruments de Physique, Geneva, Switzerland. The machine combines devices for testing gear wheels for pitch, eccentricity and profile of teeth. Beveled and helicoidal gears, as well as spur gears, with straight or helical teeth may be examined. The frame is designed so that it may be used horizontally or turned on end as shown in the illustration.

Table an Aid to Hardness Testing

No. 214

The Shore Instrument & Mfg. Co., Jamaica, N. Y., has brought out a tilting base and clamping swing arm for extending the use of the scleroscope in hardness testing. The heavy graduated table may be set at any angle and has a large removable center anvil for specimens that extend through. Work is clamped down.



Steam Trap Withstands Pressure

No. 212

The Armstrong Machine Works, Three Rivers, Mich., has designed a steam trap for extreme pressure and temperature. It is made from cast steel having a tensile strength of about 70,000 pounds per square inch. As in the standard trap, the discharge is at the top so that oil and sediment are forced out whenever the trap discharges. An air port in the closed end of the inverted submerged bucket permits any air to rise to the top and be released when the trap discharges.

X-Ray Apparatus Is Made Portable

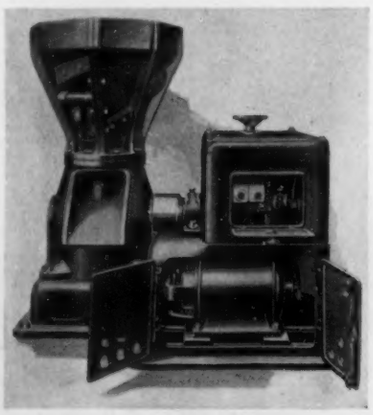
No. 215

The General Electric Co., Schenectady, N. Y., recently has developed a small portable X-ray apparatus for use in physical investigation or the trades. The apparatus is connected by an extension cord to a lighting circuit and X-rays are produced by pressing a switch. High voltage hazard is eliminated, it is claimed. The case is of metal encased in wood and leather with the apparatus grounded to the metal case. The equipment can be used in any position.

Crusher Reduces Metal Turnings

No. 213

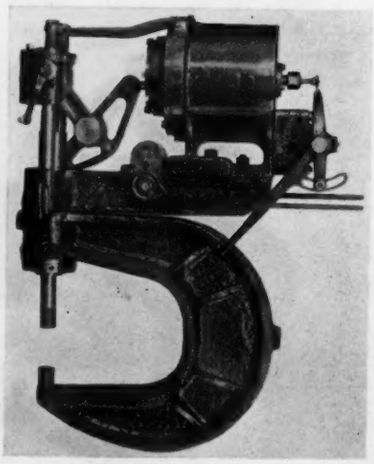
The American Crusher & Machinery Corp., New York, has developed a new electrically-driven chip crusher which reduces long, loose, bushy metal turnings to a fraction of their original volume. The machine operating at low speed cuts, grinds and crushes metal turnings and similar scrap into coarse, granular pieces which can be handled with shovels, magnets, belts or conveyors. Operation of the crusher is claimed to be simple and inexpensive, the only parts subject to wear being the cutters or knives which are removable and easily replaced. The metal turnings are forked into a hopper and the cutting action is accomplished by a number of spiral knives made of specially treated steel. An electric motor of rugged construction drives the unit. Control apparatus is built in to make it compact and self contained. To prevent the accidental entrance of solid metal, such as bar ends, tools, partly finished parts, etc., too large to pass through the crusher, the machine is equipped with a protective device to guard against knife breakage and strains of overloading. Capacity is 5 tons of turnings per day.



New Riveter Has Rotating Frame

No. 216

The Hanna Engineering Works, Chicago, has placed on the market a special column riveter for use in structural shops. Two frames were made for mounting on one head, one having an 18-inch reach and 16-inch gap and the other a 9-inch reach and 12-inch gap, both being capable of driving ⅞-inch structural rivets. By rotating the frame 180 degrees, the riveter is veritably turned upside down from an operating standpoint. This increases the range of operation. It is equipped with a plain toggle mechanism, the inner toggle being extended for attachment of the piston rod. The outer toggles pivot at their outer ends in a nut block that is adjustable in and out on two strain rods, which in turn are mounted in the head casting carrying the cylinder. The inner end of the inner toggle pivots in a plunger that is free to slide in and out in the head casting. The movable rivet die is mounted in the other end of the plunger. Die alignment is unaffected by frame rotation. The operating valve is of the four-way slide type which limits extreme travel.



and more as standard equipment on recent machines.

A special machine for drilling, reaming counterboring and facing valve holes in motor castings is described as No. 198. The machine shown is designed for use on an 8-cylinder block, 32 spindles being employed. The fixed center heads can be made with any number of spindles to meet requirements. Unit-type construction has been followed in building this machine as the head, feed and speed box are independent. This multiple drill is the product of the Defiance Machine Works.

Grinder Uses Wide Wheel

The plunge-cut grinder described as No. 200, built by the Cincinnati Grinder Co. is equipped with a fixed wheel base and movable work table. The wide wheel, in-feed principle is described by the manufacturers as follows:

As implied by its name, the grinding is done by directly feeding into the work with a wheel, the face of which is sufficiently wide to cover the entire surface being ground; or in the case of parts whose surfaces are longer than the maximum possible wheel face, by infeeding along the work at successive intervals, the face of the wheel overlapping slightly each previous cut, until the grinding of the entire length has been done, after which the work is rapidly moved past the wheel to complete it—in contradistinction from the usual method of grinding by traversing the work before a wheel of relatively narrow face, and feeding in the latter at each stroke of the table.

The machine is intended for simultaneous grinding of duplicate parts such as piston rings, collar, bushings ball and roller bearing cups, etc., as well as single pieces in quantity including shafts, pistons, spindles.

Manufacturers of portable electric and pneumatic tools have been unusually active in bringing out new equipment in recent months. The electric screw driver, described as No. 204, manufactured by the Hisey-Wolf Machine Co., is distinguished by a disk type friction clutch which is adjusted automatically according to the pressure applied by the operator. The chipping hammer just introduced by the Ingersoll-Rand Co., described as No. 207, is designed primarily for cleaning and chipping steel castings and chipping high carbon and alloy steel billets. To meet the requirements of this work the speed of the hammer is higher than that of other chipping hammers previously offered by the company. The ports in the hammer are such that power is lost, rather than gained, by playing the chisel off the work, and all barrel sections are heavy. These factors lessen the danger of barrel breakage.

Another interesting portable tool is the electric hand saw distributed by the Ohio Equipment Co. and described as No. 217. This machine consists primarily of a high speed air cooled motor, a worm drive and gear and an 8-inch circular saw. The motor is enclosed, the saw has a suitable guard, and the shafts revolve in ball bearings.

To Operate Steel Mill

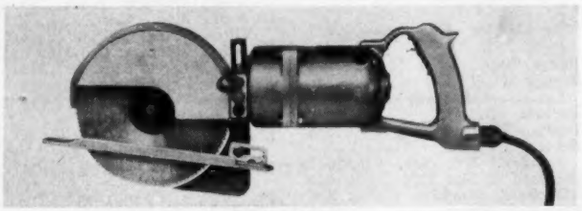
Savannah Steel Corp., Savannah, Ga., recently incorporated for $200,000 by Elliott W. Reed, 302 Estill avenue, that city, will operate a rolling mill producing concrete reinforcing bars and light structural shapes. The company has purchased a 40-acre site on the Savannah river, including the main buildings of the Terry Shipbuilding plant of Port Wentworth. The plants acquired include a powerhouse, machine shop, water distributor building, etc. The buildings will be converted for rolling mill purposes.

The commercial Drop Forge Co. Warren, O., has presented a petition for the appointment of a receiver. Assets are estimated at $210,680 and debts $98,299.

Hand Saw Is Driven Electrically

No. 217

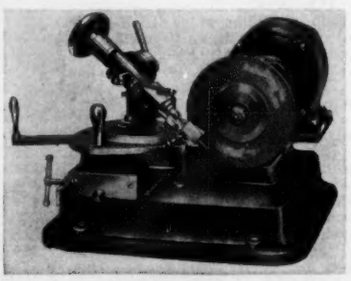
The Ohio Equipment Co., 5716 Euclid avenue, Cleveland, is introducing an electric hand saw for cutting wood, composition and metals. The saw is 8 inches diameter and has a no-load speed of 10,000 revolutions per minute. The motor is air cooled. The tool weighs 10 pounds.



New Grinder Sharpens Twist Drills

No. 218

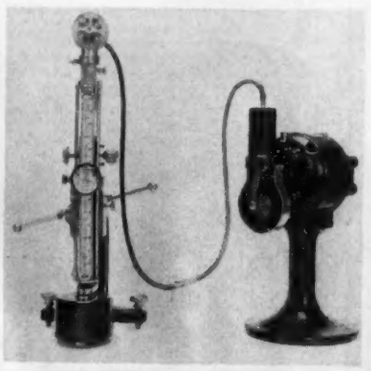
The Connecticut Cutter & Machine Works, Inc., Bridgeport, Conn., has designed a small bench machine for sharpening twist drills from ¼-inch diameter down to No. 60 drill gage. The grinding wheel of 8-inch diameter and ½-inch face is driven by a direct-connected ¼-horsepower motor. Indexing is done from the lips of the drill. Traverse and radial movements are synchronous.



Operates Scleroscope Automatically

No. 219

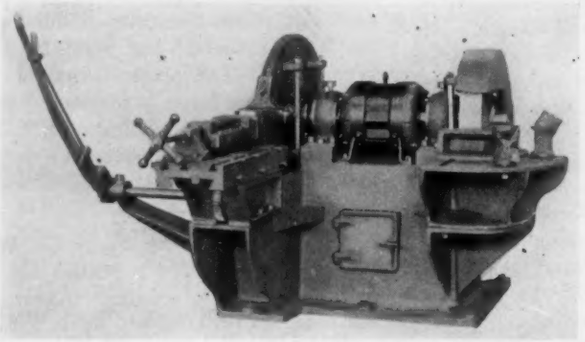
The Shore Instrument & Mfg. Co., Jamaica, N. Y., recently has introduced to the market an automatic, electric-pneumatic actuator for operating a scleroscope without the use of the usual rubber bulb and hand pressure. In production operations where it is necessary to make several thousand tests daily, the operation of the bulb is fatiguing. The operator is relieved of muscular effort except that of pressing a small trigger. A small rubber tube with controller valve inserted connects the actuator and the vertical scale scleroscope. Underneath the valve is a ring through which the operator's finger is inserted while the trigger valve is diametrically opposite the ring and operated by another finger. The electric motor operates continuously to drive the pneumatic mechanism which has the same suction and compressive force as the hand-operated bulb. It runs at a speed which is correct for ordinary operation. By this arrangement a succession of tests may be made without the use of the trigger, except to hold it drawn in. The timing for drawing up the hammer, release and rebound, is automatic. It is calculated that following each rebound, the hammer is drawn up before it falls back on the work.



Hot Drawing Machine Is Redesigned

No. 220

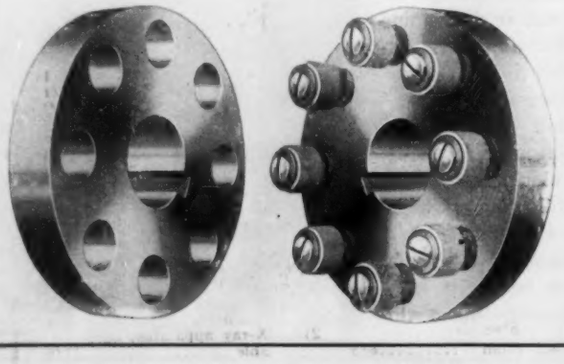
The Ajax Mfg. Co., Cleveland, has incorporated a number of new features in a redesign of its hot sawing and burring machine. Ball bearings have been substituted for babbit bearings and have aided the alignment of the motor rotor with respect to the air gap. The operating lever by which the rack and pinion table is manipulated to and from the hot sawing disk has been extended, a change which places the operator at greater distance from the saw. A more complete enclosing of the hot sawing disk and hot milling head has been provided. The No. 3 machine which carries a 30-inch sawing disk requires 6 seconds to saw 4-inch diameter steel bar of 0.80 carbon and under heated to approximately 1800 degrees Fahr. The machine also is used for slitting or longitudinal sawing where it is desired to make a forked or jaw shaped forging. The machine also is built in 20 and 14-inch sizes.



Makes New Type Flexible Coupling

No. 221

The Terry Steam Turbine Co., Hartford, Conn., is introducing a new type flexible coupling of the pin and bushing type and said to be extremely simple in design. The flanges are made of special steel machined and the pins which are also made of steel are hardened and ground. The bushings are free to adjust themselves under load and are prevented from transmitting end thrust. To keep the bushings in their proper location within the driven flange, the pins are provided with screw heads and fiber washers. The bushings, which are the flexible medium, are made from a uniform grade of rubber and are fastened securely to flanged steel spools which protect the ends and inner surface from wear. Couplings are available in capacities up to 400 horsepower per 100 revolutions per minute. They are suitable for use with steam turbines, electric motors and generators, fans, pumps, reduction gears, coal pulverizers, line shafting, etc.



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Pawling & Harnischfeger Co. 9/4
Pels & Co., Henry 2/7, 6/5,7/3
Perkins Co., Henry 4/3
Porter-Cable Machine Co. 6/5, 7/3, 9/4
Pratt & Whitney Co. 4/3, 6/5, 8/7, 9/4, 9/4
Production Machine Co...4/3
Purox Co. 10/2

Reed-Prentice Co. 7/3, 8/7, 10/2
Ren Mfg. Co. 9/4
Reynolds Electric Co.....11/6
Rockford Milling Machine Co. 6/5
Rockwell Co., W. S. 6/5
Royer Foundry & Machine Co. 5/1
Ryerson & Sons, Inc., Joseph T. 2/7

Schuchardt & Schutte 5/1
Shore Instrument & Mfg. Co. 11/6, 11/6
Simplex Tool Co. 2/7
Sly Mfg. Co., W. W. 5/1
Smith & Serrell 4/3
Societe Genevoise d'Instruments de Physique..5/1, 11/6
Southwark Foundry & Machine Co. 8/7
Stamets, William K. ..4/3, 7/3
Speednut Wrench Co.....7/3
Stamets, William K. 4/3
Starrett Co., L. S. 3/6
Stearns Conveyor Co....10/2
Stockbridge Machine Co. 7/3, 7/3
Sutton-Abramsen Engineering Co. 3/6, 4/3, 9/4

Tabor Mfg. Co. 6/5
Terry Steam Turbine Co..11/6

Up-To-Date Tool Co. 8/7

Wallace Supplies Mfg. Co. 10/2
Walls Sales Corp. ...3/6, 8/7
Warner & Swasey Co.....10/2
Watson-Stillman Co.....11/6
Westinghouse Electric & Mfg. Co. ..3/6, 5/1, 6/5, 8/7
Whiting Corp 9/4
Whitney Metal Tool Co..11/6
Williams Tool Corp. 4/3
Wilmarth & Morman Co. 4/3, 4/3
Wilson-Maculen Co.....10/2

Yoder Co. 2/7

Tools Described Thus Far in 1924 (By Products)

No. Issue

Boring and Reaming Machines

9. Car wheel 2/7
102. Car wheel 6/5
34. Cylinder 3/6
166. Rod, 2-spindle 9/4
23. 100-inch 3/6

Broaching Machines

71. Broaching fixture....5/1

Drills

60. Air motor 4/3
66. Air motor 4/3
78. Automatic 5/1
168. Cam driven drill 9/4
63. Gang 4/3
144. Heavy-duty vertical..8/7
53. 3-way, horizontal ...4/3
198. Multiple spindle 11/6
90. Tapping machine ...5/1
45. Vertical 4/3
161. Vertical 8/7
197. Vertical 11/6

Grinders

35. Abrasive belt 3/6
62. Abrasive belt 4/3
135. Abrasive belt 7/3
158. Abrasive belt 8/7
83. Bench 5/1
136. Bench 7/3
81. Cylindrical 5/1
50. Die 4/3
117. Disc 6/5
14. Drill 2/7
218. Drill 11/6
1. Gear 2/7
30. Face 3/6
143. Floor 7/3
77. Hob 5/1
111. Internal 6/5
180. Internal 9/4
146. Lapping 8/7
200. Plunge cut 11/6
115. Portable 6/5
25. Surface 3/6
47. Surface 4/3
56. Swing frame 4/3
104. Swing frame 6/5
36. Tool 3/6
89. Tool 5/1
126. Tool room 7/3

No. Issue

54. Tool, universal 4/3
73. Universal 5/1

Hobbers

13. Gear. 2/7
70. Spline, 8 spindle 4/3

Lathes and Automatics

99. Automatic lathe ...6/5
125. Automatic 7/3
149. Bench set 8/7
42. Bar machine 5/6
128. Chucking 7/3
93. Chucking, 4 spindle..6/5
118. Engine 7/3
38. Geared head 3/6
190. Hollow spindle.....10/2
124. Production 7/3
4. Screw machine 2/7
189. Turret 10/2
94. 13-inch 6/5

Marking Machine

24. Dial marker 3/6

Material Handling Equipment

57. Chain hoist 4/3
127. Crane 7/3
131. Crane 7/3
65. Elevator 4/3
26. Hoist 5/6
137. Hoist 7/3
164. Hoist 8/7
206. Hoist 11/6
55. Tractor 4/3
109. Trailer 6/5
141. Trolley 7/3
5. Truck 2/7
6 Truck 2/7
17. Truck 2/7
120. Truck 7/3

Milling Machines

110. Column facer 6/5
52. Hand 4/3
145. Hand 8/7
137. Planer attachment ...8/7
108. Production 6/5
10. Slab 2/7
33. Universal 3/6
105. Thread 6/5
107. Thread hobber 9/4

Pipe Machinery

3. Threader and cutter.2/7
64. Threader and cutter.4/3
140. Threader 7/3

Planers

84. 120-inch 5/1

Presses, Brakes, Etc.

150. Arbor and bushing...8/7
59. Baler, scrap 4/3
185. Bending machine 10/2
130. Bending press 7/3
129. Bending rolls, ...7/3
133. Blanking and edging press 7/3
74. Brake, sheet metal...5/1
148. Bushing 8/7
213. Chip crusher 11/6
18. Hinge brake 2/7
121. Press for ax heads..7/3
21. Straightener 2/7
41. Straightener 3/6
48. Straightener 4/3
88. Straightener, wheel...5/1
46. Trimming 4/3
199. Vertical press 11/6

Punches, Shears and Riveters

208. Angle iron notcher..11/6
216. Column riveter 11/6
32. Hydraulic riveter ..3/6
123. Punch and bar cutter.7/3
85. Punch and shear ...5/1
113. Punch and shear ..6/5
176. Punch and shear 9/4
134. Punch 7/3
86. Punch, multiple 5/1
100. Riveting device 6/5
184. Riveting machine....10/2
134. Shears 7/3
22. Suspension device ..3/6

Saws

106. Band 6/5
175. Band saw brazer 9/4
132. Band, metal 7/3
188. Cold metal 10/2
217. Electric hand saw..11/6
2. Friction saw 2/7
220. Hot saw and burring machine 11/6

Shapers

95. Tool room 6/5

No. Issue

119. Heavy duty 7/3
177. Vertical, 6-inch 9/4

Slotters

116. Planer type 6/5

Small Tools

192. Die-head 10/2
16. Gage, dial 2/7
28. Gage, dial 3/6
79. Level, precision 5/1
44. Parallels 3/6
80. Reamer, expanding...5/1
103. Tap, rotary 6/5
29. Taps 3/6
12. Vise 2/7
195. Vise, drill press....10/2
142. Wrench 7/3
7. Wrench, pipe 2/7

Welding Equipment

107. Arc welder 6/5
160. Arc welder 8/7
170. Arc welding generator 9/4
194. Cutting torch 10/2
67. Cutting torch tip....4/3
138. Electrode 7/3
20. Electrode holder ..2/7
39. Electric welder 3/6
154. Oxygen manifold 8/7
152. Rheostate 8/7
40. Welding torch 3/6

Miscellaneous

92. Air compressor 6/5
122. Air compressor 7/3
187. Air compressor.....10/2
203. Bearing, lineshaft...11/6
196. Belt carrier 10/2
147. Bolt thread cutter..8/7
171. Bucket, charging 9/4
181. Cab for steal shovel..9/4
210. Cleaner for carburizing compound 11/6
186. Compensator, voltage.. .....10/2
205. Controller, electric...11/6
162. Cooling fan 8/7
209. Core tester 11/6
51. Coupling, flexible ...4/3
191. Coupling, flexible....10/2
221. Coupling, flexible ...11/6
159. Cut-off machine 8/7
173. Drill stand 9/4
202. Fan, exhaust 11/6
43. Flow meter 3/6
139. Flow meter 7/3
19. Forge 2/7
101. Forging furnace 6/5
169. Forging machines ...9/4
72. Furnace, aluminum....5/1
163. Furnace, heat treating.8/7
58. Gate valve 4/3
211. Gear tester .....
155. Grinder shield 8/7
182. Hammer, chipping ..9/4
207. Hammer, chipping...11/6
178. Hammer, helve 9/4
183. Heating machine....10/2
172. Lamp bulb lock 9/4
15. Lamp guard 2/7
156. Magnetic separator ..8/7
31. Melting pot 3/6
82. Microscope attachment 5/1
27. Molding machine ..3/6
112. Molding machine 6/5
179. Molding press 9/4
219. Motor actuator 11/6
11. Motor mounting 2/7
114. Motor bearing 6/5
96. Motor starter 6/5
61. Motors, induction ...4/3
37. Oil separator 3/6
87. Reflector, lamp 5/1
8. Periscope 2/7
97. Resistance grid 6/5
68. Roller leveler 4/3
201. Sand aerator 11/6
75. Sandblast unit 5/1
76. Sand mixer 5/1
174. Sander, spindle 9/4
204. Screw driver, electric.11/6
153. Speed transformer ...8/7
49. Spray gun 4/3
91. Stair tread 5/1
151. Stair tread 8/7
214. Table for hardness testing 11/6
193. Temperature controller 10/2
212. Trap, steam 11/6
98. Vacuum pump 6/5
69. Vibrating screen 4/3
165. Worm box 8/7
215. X-ray apparatus, portable 11/6

Canada Buys Much Steel in United States

Washington, Nov. 4.—While the cumulative production of steel in Canada for the first nine months of 1924 was 139,641 tons below that for the corresponding period of 1923, it exceeded the output of the corresponding periods of 1922 and 1921 by 246,876 tons and 104,123 tons, respectively, according to G. E. Phoebus, iron and steel division of the department of commerce. The situation with regard to the output of pig iron is similar. The production of pig iron during the first nine months of 1924 was 165,736 tons lower than the output for the corresponding period of 1923, but was 242,871 tons and 61,703 tons above the output for the corresponding periods of 1922 and 1921, respectively.

Iron and steel works of Canada fall into two main natural geographical divisions. The eastern unit is located in the province of Nova Scotia, and has raw materials easily accessible. There are in the province abundant supplies of coal which has been worked for many years.

The other division has its base on the Great Lakes where all the furnaces are dependent upon the United States for fuel and to a large extent for iron ore, which is shipped from the Minnesota and other ranges convenient to the Great Lakes.

Despite the fact that Canadian producing plants have been making efforts to gain a larger share of the domestic trade, the Dominion has for some time been the most important market for American iron and steel. Consumption of iron and steel by Canada appears to have advanced considerably during the past year, and recently there has been much agitation among Canadian industrialists to strengthen the position of the Dominion works, so that Canadians might profit more by the large domestic market for this class of goods, rather than import so heavily.

While Canada is the best market for American iron and steel, it appears that the United States reciprocates by purchasing more Canadian iron and steel than any other nation. During the period from April 1 to Aug. 31, 1924, consignments aggregating nearly one-third of the total value of Canadian exports of these products went to the United States.

Company Is Dissolved

Detroit, Nov. 4.—The Iron Mountain Furnace & Chemical Co., Iron Mountain, Mich., organized in January 1922, has dissolved. A committee has been named to investigate the company's assets and distribute them among stockholders. The company was formed to make charcoal iron on a large scale, but failed to get in operation.

Schwab Denies Report

Charles M. Schwab, chairman of Bethlehem Steel Corp., has denied rumors that he has been negotiating for control of the McKeesport Sheet & Tin Plate Co., McKeesport, Pa. and the Pittsburgh Steel Co. He declared he is not interested personally in acquiring any other company, his plans calling for undivided attention to Bethlehem.

Gulf States Earns Less

The Gulf States Steel Co., Birmingham, Ala., for the quarter ended Sept. 30, reports net income of $176,275 after taxes and depreciation, charges, etc., compared with net income of $187,041, in the June 1924, quarter and net income of $336,747, in the September, 1923, quarter. The report for the nine months ended Sept. 30, 1924, showed net income of $719,276 compared with net income of $1,210,653, in the September, 1923, period.

Allis-Chalmers Net Gains

The Allis-Chalmers Mfg. Co., Milwaukee, earned $824,000 in the third quarter of 1924. This compares with net profits of $756,000 for the preceding quarter, and with $757,000 for the third quarter of 1923. Net profits for the first nine months of this year were $2,412,000, compared with $1,854,000 for the corresponding period last year. Unfilled orders on Sept. 30 totaled $10,376,000 compared with $12,575,000 on the corresponding date of last year.

Superior Steel Reports Net

The Superior Steel Corp., Pittsburgh reports for the nine months ended Sept. 30, 1924, net income of $177,167 after interest, taxes, amortization, etc. As of Sept. 30, 1924, current assets stood at $3,214,089 and current liabilities at $365,279 leaving net working capital of $2,848,810 as compared with net working capital of $3,014,437 as of June 30, 1924, and net working capital of $2,744,216 as of Dec. 31, 1923.

Fuel & Iron Has Loss

The Colorado Fuel & Iron Co., Denver Col., reports a deficit of $297,790 for quarter ended Sept. 30 against a deficit of $27,305 in preceding quarter and $316,644 in third quarter of 1923. Surplus for nine months of 1924 was $254,989 compared with $565,127 in same period last year.

High Indian Exchange Negatives Tariff

Washington, Nov. 4.—In a cable to the United States department of commerce, J. E. Miller, trade commissioner at Bombay, India, states that the steel industry of India is not benefitting from the recent protective legislation as expected, owing to the increasing gold value of the rupee. The present gold equivalent of the rupee is higher than it has been for years and consequently iron and steel can be imported at a rate lower than can be met by the local industry, Mr. Miller's cable states.

The Indian tariff board is considering further increase of duties on iron and steel to compensate for the advance in the foreign purchasing power of the rupee, but private firms, which are interested only in obtaining their supplies as cheaply as possible, are opposing further advances, and it is questionable whether immediate action will be taken.

Not only is the iron and steel industry being troubled by exchange difficulties but general business is feeling the need for exchange stabilization. It is said to be increasingly difficult for exporters to carry on business, but importers taking advantage of the situation, are exceedingly active. Crop prospects continue good with the exception of certain northern areas which have been suffering somewhat from floods.

Steel Plants in Japan Will Be Merged

Washington, Nov. 4.—The Japanese government is now seriously considering a merger of all government and private steel plants, according to a weekly cable to the department of commerce from Halleck A. Butts, acting commercial attache. This represents the culmination of a movement that commenced shortly after the war, when the private plants that were established during the boom period found themselves unable to operate under postwar conditions. The government plants have shown little or no profit for some time and the private establishments have been steadily losing money in spite of a heavy government subsidy. Consolidation is expected to eliminate unsound plants and increase general efficiency.

A new tariff bill will be submitted to the diet providing for an increase of 100 per cent in the duty on wheat and of 50 per cent on wheat flour. No change in the duty on lumber is anticipated.

American Steam Specialty Corp., New York, has increased its capital stock from $10,000 to $50,000.

American Exports Show Increase in Value

Washington, Nov. 4.—United States general exports of merchandise in August, as classified into shipments to principal countries and grand divisions of the world, show an increase in value of $19,929,834, as compared with August, last year, while imports from the same divisions to the United States droped in value from $275,437,993 in August, 1923, to $254,629,899 in August this year, according to an analysis of United States world commerce just completed by the department of commerce for August.

The August exports were valued at $330,895,725, as compared with $310,965,891 in August, last year. Exports to Japan again took a sharp drop, the total value of these in August being $9,630,140, a decrease of more than $3,500,000 from the total in the same month last year. Exports to the United Kingdom led those of any other country with a total value of $65,725,227, but this was a decrease of nearly $13,000,000 from last year. Exports to Canada were second, valued at $50,384,166, this being a drop of about $10,000,000. Exports to Germany also dropped sharply. The total for August, 1923, was $23,260,431, compared with $19,280,842 in August, this year.

The United States obtained most of its imported merchandise from Canada the total value being $30,278,854, as compared with $35,793,516 worth of goods imported from Canada in August last year. United States imports from Japan were second with a total value $29,613,084, but this was a drop from the $31,974,700 total of August, last year.

Boston Chamber Builds $6,000,000 Structure

Boston, Nov. 4.—From the beautiful bronze doorway to the smallest hinge, bolt or lock unusual care and attention has been given to the metal work and hardware used in the new $6,000,000 office building of the Boston Chamber of Commerce. This building, 14 stories high, is located on Congress, Franklin and Federal streets, in the heart of Boston's business. The site is within easy walking distance of the state house, the courts, railroad stations, large retail stores, and the wholesale districts of the leather, wool and dry goods trades.

By choosing to build for its new home an office building rather than a separate structure the chamber will obtain revenue to aid in supporting it activities. Among the tenants of the building, in addition to many widely known private corporations, are the National Association of Cotton Manufacturers, the National Association of Wool Manufacturers, the New England Iron & Hardware association, and the Boston Board of Typothetae.

The chamber's quarters are on the thirteenth and fourteenth floors, the thirteenth floor being given up to the activities of the staff and to private dining rooms. On the fourteenth floor are the main dining room, the members lounge, the library and the directors' room. Tenants of the building as members of the chamber, may use the facilities of the two top floors.

The building, which is of unusual beauty, was designed by the firm of Parker, Thomas & Rice. Construction work was carried on by the W.M. Evatt Co. and the steel work was done by the New England Structural Co. The steel work was re-enforced at the fifth and sixth floors with extra members to carry the additional floors. The exterior finish is in limestone.

France Nearly Restored

Washington, Nov. 4.—According to statements given out by authorities in France, about 80 per cent of the houses destroyed during the war had been rebuilt by July of this year; 90 per cent of the damaged canals had been reconstructed; 80 per cent of the trenches used by the troops of both armies had been filled in; and 88 per cent of the damaged factories had been put in operation, according to the European division of the department of commerce. While to a great extent the repairing of damages was executed with government aid, nevertheless, much is due to the energy and industry of private individuals and owners. Agricultural land had been reclaimed, populations had been returned to their original dwellings, and manufacturing and mining industries had been put into operation. Since that time reconstruction has gone forward at an increasingly rapid rate, and with nothing intervening to interrupt the present progress, it may be definitely completed before the middle of 1925. About 50 per cent of farming lands have been restored, and three-fourths of the coal mines are now operating.

Car Order Is Postponed

Washington, Nov. 4.—The assigned car order of the interstate commerce commission, restricting and regulating the distribution to coal mines of privately owned cars and cars for railroad fuel, again has been postponed, this time from Nov. 1 to Dec. 15.

Barrel Makers Organize New Association

Formation of the Steel Barrel Manufacturers institute was accomplished recently at a conference held in Cleveland. One of the main purposes of the new organization is to provide a better means of co-operation in carrying out the program of simplification which the industry entered into some time ago with the department of commerce.

Other activities will be gathering of statistics for publication by the department; development of cost work among its members; publishing and distribution to buyers of a booklet of information embodying all official barrel specifications, the industry standards and general data of value to buyers; establishment of a credit and collection bureau; the development of trade practices and customs and a transportation bureau to handle matters pertaining to classification and rates.

The following manufacturers, who have so far become members, represent over 90 per cent of the productive capacity of the industry: American Steel Package Co., Defiance, Ohio; R. E. Chapin Mfg. Co., Batavia, N. Y.; Cleveland Steel Barrel Co., Cleveland, Ohio; Detroit Range Boiler & Steel Barrel Co., Detroit, Mich.; Draper Manufacturing Co., Cleveland, Ohio; Erie Steel Barrel Co., Erie, Pa.; Hirsch Cooperage & Steel Package Co., Houston, Texas; Manion Steel Barrel Works, Rouseville, Pa.; Metal Barrel Corp., Peoria, Ill.; Meurer Steel Barrel Co., Inc., New York, N. Y.; National Enameling & Stamping Co, New York, N. Y.; National Steel Barrel Co., Cleveland, Ohio; Ohio Corrugating Co., Warren, Ohio; Perfection Metal Container Co., Cleveland, Ohio; Petroleum Iron Works, Sharon, Penn.; Presed Steel Tank Co., Milwaukee, Wis.; Republic Steel Package Co.; Cleveland, Ohio; Republic Steel Package Co., Richmond, Calif.; Stevens Metal Products Co., Niles, Ohio; St. Louis Steel Package Co., St. Louis, Mo.; Welded Steel Barrel Corp., Detroit, Mich.; Wheeling Steel Corp., Wheeling, W. Va.; Wilson & Bennet Manufacturing Co., Chicago, Ill.

Officers of the institute are J. L. Considine, Petroleum Iron Works Co., president; C. H. Draper of the Draper Mfg. Co., vice president; D. S. Hunter, Cleveland, secretary-treasurer. Headquarters of the institute will be in the Bulkley building Cleveland, Ohio.

Alexander MacLeod, operator of a brass foundry at 547 West Twenty-first street, New York, has filed liabilities of $3968 and no assets in petition for voluntary bankruptcy.

Urges Welding of Steel Structures

American Welding Society in Annual Convention at Cleveland Would Fabricate by the Use of Welding—Lack of Visible Evidence That Satisfactory Welds Have Been Made Deters Advancement

FABRICATION of large structures by the use of welding was the chief consideration of the American Welding society which held its annual fall meeting at the Winton hotel, Cleveland, Oct. 30-31. Practically all of the papers presented were related to this topic. At the present time many small structures are built by the use of welding but for large structures the field is almost untouched. It was pretty clearly brought out in the papers and discussion that structural engineers require visible evidence that sound welds have been made and at the present time this evidence is lacking. Much investigation must be undertaken before the mental resistance of fabricators can be broken down. To the end that welding be brought to the front as rapidly as possible, greater cooperation between welding and structural engineers was urged.

Brief business sessions were held on Thursday morning and Friday afternoon. Inspection trips and welding demonstrations took up the time of the visitors during Thursday afternoon. A barbecue dinner was served at the hotel in the evening. At a special luncheon on Friday, the speakers were City Manager W. R. Hopkins and Congressman T. E. Burton of Cleveland. Demonstrations of electric, gas and thermit welds and the uses of liquid oxygen were made at a meeting which was held at the Y. M. C. A. building on Friday evening.

More Welding Investigations Needed

THE opening session of the convention was held on Thursday morning with President E. H. Ewertz, general manager, Bethlehem Shipbuilding Corp., Elizabeth, N. J., presiding. After delivering a few brief remarks of welcome he called upon H. H. Dyar, district sales manager, Linde Air Products Co., Cleveland, and chairman of the Cleveland section of the society, who gave a detailed explanation of the convention program, including the inspection trips and social events. At the conclusion of this session, a luncheon was held at the hotel.

An interesting program had been arranged for the afternoon. Due to the fact the Illuminating Co., Cleveland, was laying steam mains in one of the principal downtown streets and is welding all joints, some little time was spent in inspecting the operations. The opportunity was afforded to see welds made under field conditions. A visit was made to the Lincoln Electric Co., Cleveland, manufacturer of electric welding equipment. A trip also wsa made to the Collinwood shops of the New York Central railroad, where the party was conducted through the repair shops.

Two technical sessions were held on Friday and the main subject of discussion was the application of welding to the fabrication and erection of structural steel. President Ewertz presided at both meetings. "Use of the Electric Arc for Welding Structural Steel," by R. E. Kinkead, engineer of arc welding, Lincoln Electric Co., Cleveland, was the first paper presented. The author pointed out that on the average it is known that structural steel pieces can be welded together at about one-third of the labor expenditure involved in riveting them together, therefore the welding industry must answer the question "Why can't we weld the structural steel members together and save money?" He pointed that the work must be done or a satisfactory and conclusive answer given as to why it can not be done.

One difficulty with riveted joints is that rivets work loose, consequently to determine the reason, Mr. Kinkead stated that riveted joints had been reproduced in rubber and the flexures studied. With this decreased modulus of elasticity, deformations under stress were visible to the naked eye. It was found that although rivets filled the holes under no load, they did not fill the holes under load due to the deformations. Water or atmospheric moisture around the rivets, therefore, could cause deterioration. The author said much money is spent in maintaining structures in which rivets work loose.

Would Weld All Joints

Mr. Kinkead advocated the use of welded joints, pointing out that something is known of the limitations of welded joints, these limitations being that they have no reliable degree of ductility and that the application of heat to the hot rolled steel to make the weld results in cast metal adjacent to the line of fusion in the hot rolled metal. But with these limitations in mind, he said a joint could be designed which would withstand practically any stress ever encountered in the fabrication of structural steel. In concluding, the author said structural steel is not riveted together because of regrettable ignorance and lack of physical conception of what happens when a load is applied to a structural steel beam or column. It is a relatively short step to that knowledge and understanding.

"Gas Welded Structures and the Cutting Torch as a Tool in the Structural Field," was the title of a paper prepared by G. O. Carter and D. C. McGiehan, Linde Air Products Co., New York, and presented by Mr. Carter. At present the gas torch is simply a tool in the fabricator's kit, being used to make changes in material in the field. It is used also for fabrication where templets are not required. The author said the future use of the oxyacetylene torch was in the making of structural joints. He claimed its use would result in the introduction of lighter and tubular sections easier to fabricate. Good gas welds can be made 100 times out of 100, he claimed.

For structural welds bronze filler rods are used together with a bronze flux, however, Mr. Carter stated that if the sections are prepared at the mills with machined surfaces, pickled if necessary and dipped into a bronze flux, the need for flux in the field would be eliminated. Skilled operators always are necessary. The speaker said tubular butt welds can be made with the joint strength equal to the material strength even under vibration. He cited the example of a large rotary kiln made from tubular sections welded together and subjected to constant severe stresses. Nearly a year's

operation has developed no checks in the weld. Welded construction instead of riveted has increased the production of the kiln 15 per cent and simplified refractory lining problems.

Present Problems Most Important

In discussing this paper, one speaker suggested that the welding industry was more concerned with the problems of welding structural steel as designed at present rather than with the introduction of new designs. New designs would be forthcoming following the successful welding of structures as now designed. In contrast to this opinion, President Ewertz maintained that the substitution of welding for riveting is fundamentally wrong. He suggested going back to the fundamentals of design and then redesigning from there on.

Probably the most extensive paper on the program was "Welding as a Method of Fabricating Large Structures," prepared by Henry Goldmark, consulting engineer, New York, W. Spraragen, secretary of the American Bureau of Welding, New York, and W. L. Warner, industrial engineering department, General Electric Co., Schenectady, N. Y. The paper was divided into two main parts, the first part being presented by Mr. Spraragen and the last part by Mr. Warner. Comparing riveting and welding, Mr. Spraragen outlined the steps necessary in riveting and welding a structure.

Data from existing examples of this type of construction have shown a saving of from 15 to 25 per cent in weight can be secured, thereby saving money in freight and handling charges. Mr. Spraragen stated that in welding the parts need not be aligned as accurately as in riveting. Construction noise also is eliminated. Where oil, water or gas tightness is required the superiority of a welded product which is tight up to its ultimate strength commends itself as compared to a riveted structure which is tight only up to 50 per cent of its ultimate strength. From this point Mr. Spraragen discussed welding methods and called attention to a number of structures fabricated by welding. Conclusions to his paper were as follows:

1. Electric arc welding possesses possibilities of being used as a means of fabricating structural steel parts with resulting economies and superiority of product.
2. Test data and service experience already have shown that welding can be used safely in structural work if proper regard is given to design, methods, inspection, workmen, materials and specifications.
3. If welding is to be specified, a structure should be designed primarily for welding, as in this way only will it be possible to get a good job and effect the maximum economies.
4. While a vast amount of data already is available still more must be obtained, particularly as to types of joints and shapes of structural members.
5. Structural engineers, steel companies and fabricators should co-operate in the preparation of data and specifications which will be of service to the structural engineers and in conducting a comprehensive series of investigations to secure data and information now lacking.

Explains Method of Design

At the afternoon session Mr. Warner presented the second part of this paper, confining his remarks to the design of a welded truss. With a riveted truss as a starting point, the new truss was designed part by part until a similar truss of approximately the same carrying capacity was developed. Generally speaking, many of the members were lighter than those used in the original truss. Mr Warner used the edge type of welding at points where material lapped over other sections. In discussing this paper G. O. Carter, consulting engineer, Linde Air Products Co., New York, stated that still further saving could have been made by using butt welds instead of edge welds and a more positive type of joint would have been obtained.

Prof. H. L. Whittemore, bureau of standards, Washington, read a brief paper in which he told of some of the experimental work on welding being conducted by the bureau. He said he advocated the use of welding in structural steel fabrication but it was necessary to conduct still further tests before the method could be recommended positively. In closing he said that the bureau of standards was willing to co-operate with all agencies in investigating the advantages of welding.

Chairman Ewertz called upon Lee H. Miller, chief engineer of the American Institute of Steel Construction, Cleveland, to express his views on the merits of welded fabrication. Mr. Miller said that 3,000,000 tons of structural steel, not including tank plate, is used in the United States and Canada annually and, on an average, 150 rivets are required per ton. Engineers know what a rivet will do and before accepting welding want to know what a weld will do. He pointed out that in the papers presented the welds had not been under stress and that structural engineers were most concerned with members under stress.

Engineers Must Be Convinced

Mr. Miller expressed the belief that spot welds can be made between two structural members, but the construction engineer must be convinced that a weld exists and up to the present time there is no positive method for determining that a weld has been made. The contraction of rivets after being driven in structural members produces sufficient friction between the members to carry the safe load, on the other hand, welded joints seem to offer no way of obtaining this friction. Before welding can be developed far, the mental resistance of structural engineers and fabricators must be overcome, and this requires visible evidence. Rivets when heated electrically heat up in the center first and on the ends last due to the fact that the greatest resistance is in the center. Consequently Mr. Miller suggested that possibly this principle could be applied to spot welds on structural steel. He went further to explain that if two buttons or disks which can not be welded easily were placed on opposite sides of the joint to be made and if it were determined by tests that these buttons became welded to the steel members only after an internal weld had been made, engineers would have some means of judging welds.

J. H. Edwards, assistant chief engineer, American Bridge Co., New York, agreed with Mr. Miller that tangible evidence of successful welds must be secured before structural engineers would consider welding seriously. On the other hand, he pointed out that fabricators were interested in any method that would save money and if welding were proven able to do that, it would receive greater attention. He said he was convinced that satisfactory electric spot welds can be made and that some years ago his company made a number of tests along that line. Closer co-operation between welding engineers and structural engineers is necessary before welding can make any great progress in the fabrication of large structures.

The last paper read at the session was "Uses of Spot Welding in the Structural Field," by H. A. Woofter, electrical engineer, Thomson Electric Welding Co. and Thomson Spot Welder Co., Lynn, Mass. Mr. Woofter described machines which had been developed for spot welding, using a number of stereopticon slides. He explained the increased success of recent machines by the fact that increased pressures are used to hold the pieces together while being welded, giving closer grained welds.

The Friday evening session held at the Y. M. C. A building consisted of a number of demonstrations of electric and gas welding By the use of a projector which throws on a screen what happens in metallic arc welding, T. A. Wry, General Electric Co., Lynn, Mass., demonstrated the use of the electric arc R. L. Browne, Metal & Thermit Corp., Boston, demonstrated a thermit reaction. Following the showing a motion pictures illustrating the manufacture of liquid oxygen and its uses, F. E. Rogers, Air Reduction Sales Co., New York, gave a practical demonstration with the gas.

News of Societies

Past and Coming Meetings of National and Local Trade and Technical Organizations

AN EXTENSIVE program has been arranged for the annual convention of the American Institute of Steel Construction which is to be held at French Lick Springs hotel, French Lick, Ind., Nov. 13-15. The board of directors will meet on the day preceding the opening of the convention as will also the committees on cost accounting, publicity and code of standard practice. The meetings will conclude on Friday night with a banquet. A golf tournament is planned for Saturday and a special dinner is to be held in the evening for those who care to remain. The convention program is as follows:

Thursday, Nov. 13

9:00 a. m.—Registration
10:00 a. m.—Address of welcome by J. A. Shields, president, Indiana Manufacturers' association
10:30 a. m.—Response by J. L. Kimbrough, president, American Institute of Steel Construction
11:00 a. m.—President's annual address
Treasurer's report
Appointment of committees
12:30 p. m.—Luncheon. Address: "The Basic Principles To Be Considered in Fireproofing Structural Steel," by A. W. Sinnamon, Hubbell & Benes, Cleveland
2:30 p. m.—Report of executive director, Charles F. Abbott
4:00 p. m.—Address: "Education and Training for Aggressive Sales Work," by R. C. Hay, manager sales training, American Radiator Co., Buffalo
4:30 p. m.—Address: "Benefits of a Uniform Method of Cost Accounting," by W. R. Basset, president, Miller, Franklin, Basset & Co., New York
8:00 p. m.—Social program and dancing

Friday, Nov. 14

9:30 a. m.—Report of traffic committee
10:00 a. m.—Report on the adoption of the standard specifications by Lee H. Miller, chief engineer, American Institute of Steel Construction
11:00 a. m.—Progress report on standard handbook and manual for the structural steel industry, by Lee H. Miller, chief engineer of the American Institute of Steel Construction
12:30 p. m.—Luncheon. Address: "Steel Fabrication and Municipal Building Inspection," by Frank Burton, president Building Officials Conference of the United States and Canada and city building commissioner, Detroit
2:30 p. m.—Report of committee on code of standard practice, by W. M. Wood, chairman
4:00 p. m.—Address: "The Local Iron League and What It May Accomplish," by R. B. Thomas, executive secretary, Iron League of New York
4:45 p. m.—Election of officers and business session
7:30 p. m.—Banquet. Address: "The Structural Steel Industry and Its Relation to the Upbuilding of Our Country," by John W. O'Leary, vice president, Chicago Trust Co., Chicago
Address: "Transportation and Industrial Development," by Elisha Lee, vice president, Pennsylvania Railroad Co., Pittsburgh

Saturday, Nov. 15

Golf tournament
7:00 p. m.—Special dinner

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Announce Tentative Program

According to the tentative program which has just been announced for the annual meeting of the American Society of Mechanical Engineers at New York, Dec. 1-4, considerable attention will be given to machine shop problems, two sessions having been arranged on practice and two on management. As in past meetings of the society, joint sessions will be conducted beginning on Tuesday morning and continuing through Thursday. A council meeting and all day session of the local delegates will be held on Monday and another council meeting on Friday. An open house is to be held on Monday evening, the presidential address and reception on Tuesday evening and the annual dinner on Wednesday evening. The tentative program is as follows:

Monday, Dec. 1

9:30 a. m.—Council meeting
Local section delegates conference
Committee meetings
2:30 p. m.—Council meeting
Local section delegates conference
Committee meetings
Public hearing on "Power Test Codes"
8:00 p. m.—Open house

Tuesday, Dec. 2

9:30 a. m.—Technical sessions

OIL HANDLING AND STORING

"Storage and Handling of Fuel Oil in Industrial Plants," by C. G. Sheffield and H. H. Fleming
"Handling Oil from Storage to Furnace," by John R. Battle

RESEARCH IN MACHINE DESIGN AND OPERATION

"Various Methods of Measuring Hardness," by J. O. Keller
Progress report of special research committee on metal springs
2:00 p. m.—Technical sessions

MACHINE SHOP PRACTICE

"Effect of Inaccuracies in Gear Teeth," by L. J. Franklin and C. H. Smith
"Mechanical Springs," by J. K. Wood
"Ruling Line Standards by the Application of Light Interference and End Measuring Machines Upon Which They Are Used," by C. G. Peters and H. B. Lewis
4:30 p. m.—Lecture. "The Petroleum Situation in the United States," by J. D. Sears
8:00 p. m.—Presidential address and reception

Wednesday, Dec. 3

9:30 a. m.—Technical sessions

OIL BURNING

"Hazards of Industrial Oil Burning," by H. E. Newell

NATIONAL DEFENSE

"The Engineering of National Defense," by Dwight F. Davis, assistant secretary of war
"Some Problems in the Design of Ordnance," by Major J. B. Rose
"X-Ray Examination of Metals at the Watertown Arsenal," by Col. T. C. Dickson
"Shock Resisting Properties of Different Compositions of Steel at Various Temperatures," by F. C. Langenberg

MECHANICAL DESIGN FOR SAFETY

"A Place for Safety," by L. A. DeBlois
"Hazards of Pulverized Fuel Systems," by H. E. Newell and R. Palm
"Accident Prevention in Oxyhydrogen Plants," by C. C. Myers
2:00 p. m.—Business meeting
Presentation of Admiral George Wallace Melville bust
3:00 p. m.—Education and training for the industries
6:30 p. m.—Annual dinner

Thursday, Dec. 4

9:30 a. m.—Technical sessions

MANAGEMENT

Re-presentation of F. W. Taylor's paper on Shop Management by Morris L. Cooke
"The Development of a Modern Hosiery Plant," by H. T. Rollins
2:00 p. m.—Technical session

MANAGEMENT

"Production Control," by G. D. Babcock
"Design, Manufacture and Production Control of a Standard Machine," by R. E. Flanders

* * *

Convention Calendar

Nov. 13-15—American Institute of Steel Construction. Annual convention, French Lick Springs hotel, French Lick, Ind. C. F. Abbott, 350 Madison avenue, New York, is executive director.

Nov. 19-20—National Founders association. Annual convention, Hotel Astor, New York. J. M. Taylor, 29 South LaSalle street, Chicago.

Dec. 1-4—American Society of Mechanical Engineers. Annual meeting at the Engineering Societies building, New York. Calvin W. Rice, 29 West Thirty-ninth street, New York, is secretary.

Foundrymen Will Meet

The National Founders association will hold its twenty-eighth annual convention in New York, Nov. 19-20. Headquarters will be at the Hotel Astor. Work of the past year will be reviewed and work for the coming year arranged. No announcement concerning the program has been made but it is stated that the convention, following the national election so closely, will be of considerable importance to the foundry industry.

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Plan Advertising Campaign

At the annual convention of the National Association of Ornamental Iron and Bronze Manufacturers held at the Hollenden hotel, Cleveland, Oct. 23-24 plans were laid for a $50,000 advertising campaign in behalf of the industry. Committees were appointed to consider uniform cost accounting, to revise the uniform contract, to organize local associations in industrial cities and to revise the constitution and by-laws. F. H. Howe, Columbus Wire & Iron Works Co., Columbus, O., was re-elected president of the association. Other officers chosen were: First vice president, R. P. Lipheart, Richmond Structural Steel Co., Richmond, Va.; second vice president, W. K. Ross, Albee-Godfrey Walecreek Co., New York; third vice president, A. L. Woodbridge, Woodbridge Ornamental Iron Co., Chicago; fourth vice

(*Concluded on Page* 1249)

All But The Squeak

How Railroad Cars Are Cut Up for Scrap, at Chicago—Interesting Comparison of Finished Products as Sold "By the Pound"

BY E. C. BOEHRINGER

CHICAGO, Nov. 4.—Greater use of steel cars by the railroads means more material for iron and steel scrap dealers to trade in, but additional work and expense for the yards. One yard interest here estimates $5 a ton is the minimum it costs to prepare destroyed steel cars for the market. In junking steel cars the railroad usually makes one cut down the center and three or four cuts transversely, no more than is necessary to permit the pieces to be loaded in open top equipment. These large pieces are difficult for the scrap yards to unload, they must be cut down by the torch before the shears can handle them, and frequently malleable and steel castings must be burned off. Car steel is relatively expensive compared with other steel grades of scrap. The volume of this grade is increasing rapidly each year.

* * *

To ascertain whether farm implements are really high-priced at this time one of the manufacturers weighed his line and figured the freight to a rural point in northern Illinois. He found that his mower was selling for 10.3 cents a pound, his corn binder for 12.2 cents, his cultivator for 12.9 cents and other implements about the same, with the maximum 13.6 cents per pound. Then he weighed some domestic articles in a general store at this northern Illinois point. He learned that the farmers there were paying 15 cents per pound for garbage cans, $1.37 per pound for bicycles, 15.4 cents for wheelbarrows, 23.8 cents for lawn mowers and 21.1 cents for washing machines. A Ford, with rims and starter, figured back to 25.8 cents per pound. Mail order prices delivered at this same point ran as high as 44.5 cents per pound for a meat chopper and 29.5 cents for a bench vise.

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Rails painted to match rolling stock is only one of many possibilities offered by the New York Central railroad's experiment in painting rails on the side and bottom to prevent rust. Twenty miles have been painted to determine the value of the idea. Paint manufacturers estimate the rust loss in the United States at more than $600,000,000 annually, of which the railroads contribute a large share.

* * *

Recently a Chicago interest shipped a carload of pig iron and a carload of cast scrap to a consumer in northern Indiana with the delivered price of the scrap 50 cents a ton over that of the pig iron. This unique circumstance resulted from the need of the buyer for a grade of scrap, to correct his mixture, which country dealers could not fill.

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An exposure of Moscow's revolutionary plots in the United States has developed the charge that meeting places were chosen in 1919 near large industrial plants where the proletariat would meet on "The Day" to seize industrial plants and ultimately the government. The various plants of the International Harvester Co. in Chicago, the Crane Co. works, the Inland Steel Co. plant at Indiana Harbor, the Illinois Steel Co. works at Gary and the Youngstown Sheet & Tube Co. branch at Indiana Harbor were among the establishments supposed to be ordered for seizure.

* * *

At its recent meeting in Chicago the administrative board of the American Engineering council was considering a resolution looking to better handling of patent matters in the courts. Several "whereases" developed the thought that judges can become competent to handle intricate matters only after years of application and that present compensation of federal judges is not adequate enough to induce them to continue on the bench long enough to familiarize themselves with the work. When it was brought out that federal district judges get $7500, federal circuit judges $8500, and state supreme judges in the East range from $9000 to $18,000 the board immediately deleted the "whereases." Many an engineer works a lot harder than many federal judges and for less than $9000 to $18,000 a year, the board averred.

* * *

Real estate dealers are making the most of the abolition of Pittsburgh plus. The Calumet region, just south of Chicago, is to surpass Pittsburgh, the valleys, eastern Pennsylvania and the Ruhr combined in steelmaking capacity, according to those with real estate to sell. Farms for miles around have been acquired for speculation. At the outset a hundred millions is to be spent, is the glittering picture held out to prospective buyers.

Societies News

(*Concluded from Page* 1248)

president, T. E. Griffith, W. S. Tyler Co., Cleveland; commissioner, Charles Waltz, Cincinnati.

Report on Weathering Tests

Reports were presented on a number of subjects to the committees of the American Society for Testing Materials, at a session at the bureau of standards Oct. 22, 23 and 24. They included the standard of corrosion tests methods of sampling and testing ferroalloys, specifications and tests for steel tubes, pipes, plates, forgings, and of various metal alloys, including those of aluminum.

Specimens of sheet iron and steel, exposed to a weathering test at Annapolis seven years ago, were inspected at one of the sessions by a committee. These sheets were one of three sets exposed for test. One set was placed at Annapolis, where the materials were exposed to sea air, another at Fort Sheridan, Ill., where there was a typical inland atmosphere, and one at Pittsburgh. The test at Pittsburgh is now over, all the specimens having failed. The sheets at Annapolis and at Fort Sheridan now are beginning to fail, it was found. In each case it was found that copper bearing sheets stood up better than those free from copper.

Plans for similar tests of wire screens were reported to another committee. These tests, which are being undertaken with the aid of the bureau of standards, involve the exposure of screens in four locations, inland, an industrial center, a seacoast and a tropical seacoast. A similar investigation is being planned to cover galvanized and other coated metals.

The meetings took the form of a number of separate committee meetings. Thursday afternoon members of the society were given a trip through the laboratories of the bureau of standards, and Friday evening an entertainment was given showing pictures of an expedition through the Grand Canyon.

Men of Industry

Personal News of a Business Character Pertaining to the Iron and Steel and Related Fields of Enterprise

SIR FREDERICK MILLS in being elected president of the Iron and Steel institute for the coming year, shows that the members of that organization have indicated their wish to work in close co-operation with the industry, since the president-elect is one of the prominent figures of the British iron and steel industry. Sir Frederick Mills, was born at West Hartlepool in 1865, his father, Mr. Leighton Mills, being general manager of Pyle Spence & Co., shipbuilders and engineers in that town. Sir Frederick was educated privately and was an undergraduate of Durham university. He served his apprenticeship as an engineer at Palmer's in Jarrow and afterwards served in their steelworks. After being steelworks manager at West Hartlepool and Wishaw in Scotland he was appointed in 1899 as general manager of The Ebbw Vale Steel, Iron & Coal Co., Ltd. In 1910 he was made managing director, and chairman in 1919.

During the war Sir Frederick was made an honorary colonel and a member of the Welsh army council. He was instrumental in recruiting many thousands of men to the fighting services, raised a special batallion known officially as the Tenth South Wale Borderers, or locally as "Mills' Army," and was appointed a Deputy Lieutenant of Monmouth and in 1921 created a baronet by the King.

Sir Frederick joined the Iron and Steel institute in 1896, was elected a member of council in July, 1914, vice president last year and is now president-elect.

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J. S. Paul, recently has been made general manager for the Michigan City Foundry & Machine Co., Hinsdale, Ill.

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G. W. Mead, vice president of the Union Carbide Co., New York, has been elected a director of the Maxwell Motor Car Co., Detroit.

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A. C. Harper, former mayor of Los Angeles, is president of the Consolidated Pipe Works, that city, manufacturers of riveted steel pipe.

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Maurice Joseph, a son of Joseph Joseph, organizer of the Joseph Joseph Co. and the Railway Supply & Mfg. Co., Cincinnati, has resigned from all active connection with commercial business and will devote his time to administration of the financial work of the Community Chest agencies of that city. Maurice Joseph resigned recently as president of both the Joseph Joseph and Railway companies. He is a director of the Fourth Central National bank and the Dalton Adding Machine Co., Cincinnati.

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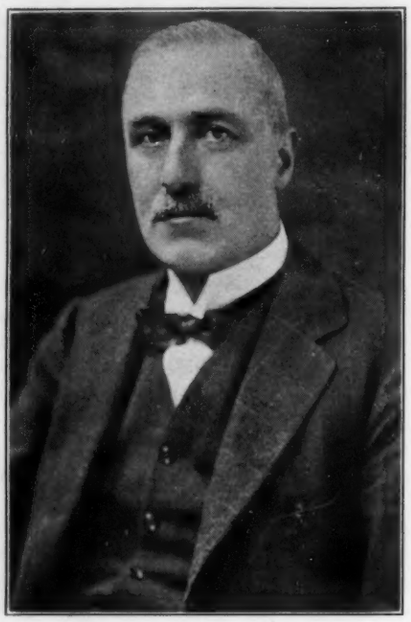
Karl Kendig, recently made secretary of the Whitman & Barnes Mfg. Co., Akron, O., manufacturer of drop forgings, etc., formerly was advertising manager of the company.



SIR FREDERICK MILLS

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H. A. Davis, president of the McKeesport Coal & Coke Co., McKeesport, Pa., was elected a director of the Marine National bank, Pittsburgh.

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Michael H. Connelly, formerly sales agent for the American Car & Foundry Co., has become sales manager for the Albany Car Wheel Co., the General Steel Casting & Machine Co. and the Reading Car Wheel Co., with headquarters at 8 Lister avenue, Newark, N. J.

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Ira J. Dodge, formerly of the research department of the White Motor Co., Cleveland, has been placed in charge of a branch office opened at 330 Bulkley building, that city, by the Brookmire Economic Service, New York.

* * *

E. H. Collester has been appointed general superintendent of the Steubenville works of the Wheeling Steel Corp., Wheeling, W. Va. He has had charge of the by-product coke plant at Follansbee, W. Va., for this interest. Mr. Collester succeeds Howard K. Moore who has been appointed to special work in the general offices at Wheeling.

* * *

J. E. Harris, traffic manager of the Jeffrey Mfg. Co., Columbus, O., will be acting president of the Ohio State Industrial Traffic league following the withdrawal of F. M. Renshaw of Cincinnati from that office to take charge of the traffic department of the chamber of commerce at Buffalo.

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William D. Jorres, connected with the steel department of Thos. W. Simmons & Co., San Francisco, since 1918, has resigned and will open offices of his own in the Exchange building, 369 Pine street, that city, and will handle steel products.

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Gen. W. W. Atterbury, vice president of the Pennsylvania railroad system, will succeed Samuel Rea as president when the latter retires next year. Elisha Lee, regional vice president at Pittsburgh, has been made vice president in charge of operations, succeeding General Atterbury.

* * *

J. E. Gaffney has been made foundry superintendent for the Toledo Machine & Tool Co., Toledo, O. Until recently Mr. Gaffney was connected with Hadfield-Penfield Steel Co., Willoughby, O., and previously he was foundry superintendent of the Bethlehem Steel Co. foundry, Sparrows Point, Md.

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L. A. Sanger, for many years executive head of A. I. Sanger & Son, Cleveland, has opened an office for the purchase and sale of steel sheets, strips and plates, washer and stamping material, with headquarters at 918 Hanna building, that city.

* * *

Harold Blum, who recently joined the Cleveland Railway Supply Co., Cleveland, as sales engineer, formerly was connected with the Rail Welding & Bonding Co., that city, as sales and advertising manager. He received engineering training at Ohio State university, Columbus, O.

Plans Wider Distribution of Coal Equipment

The Fuller-Lehigh Co., 50 Church street, New York has announced it has entered into an agreement with Babcock & Wilcox, Ltd., of London, England, to operate under the Fuller-Lehigh Co. patents whereby everything in connection with its pulverized coal business will be handled in the various countries throughout the world by Babcock & Wilcox, Ltd., of London, with the exception of the United States, its dependencies, Canada and Mexico. Inasmuch as Babcock & Wilcox, Ltd., of London have modern manufacturing plants in many parts of the world it enables these countries to save the duty and freight on the material and makes it practical to install the necessary equipment to use pulverized coal much more extensively, and should materially increase the use of pulverized coal throughout the world.

Babcock & Wilcox, Ltd., have taken over a large number of members of the Fuller organization who have specialized for years in work of this kind so that the London company will have experienced engineers to handle this department.

The agreement was concluded between the Fuller-Lehigh Co. and Babcock & Wilcox, Ltd. in July, since which time the latter company has secured a number of contracts in various parts of the world to equip boilers to operate with pulverized coal.

Southern Coal Merger Is Being Completed

Birmingham, Ala., Nov. 3.—The largest coal producing company in the South with the exception of iron and steel companies, will result from the merger of the Pratt Consolidated Coal Co. and the Alabama By-Products Corp., now being completed. An official statement from both companies says that the Pratt Consolidated Coal Co. and its subsidiary, the Globe Coal Co., will merge with the Alabama By-Products Corp., which owns and controls the Imperial Coal & Coke Co., the Majestic Coal Co., the Birmingham Coke & By-Products Co. and the Industrial Gas Corp. The merger will be complete as soon as legal details can be finished. There will be no new financing. The combined companies have about 110,000 acres of coal land in the Warrior coal fields, with more than 20 mines with proven capacity of 2,500,000 tons of coal annually.

The Alabama By-Products Corp. is operating 75 modern ovens and is building 25 new ovens, with complete by-product recovery system. This plant is 4 miles from the center of the city of Birmingham on a site of 100 acres for expansion to the original plan of 300 ovens. The Imperial Coal & Coke Co. operates 103 beehive ovens. The Industrial Gas Corp. distributes the gas from the by-product ovens. The consolidation involves $5,000,000 to $6,000,000 capitalization.

Baldwin's Get Galvanizing Plant in Montreal

Toronto, Ont., Nov. 3.—Baldwin's Ltd., British steel manufacturer, has acquired a portion of the Montreal plant of the McClary Mfg. Co., where it will make galvanized steel sheets for the Canadian trade. The plant will be operated by a new Canadian subsidiary of the Baldwin company to be known as Baldwin Montreal, Ltd., the board of which will include an equal number of British and Canadian directors. Sir Charles Wright, one of the joint managing directors of Baldwin's Ltd., is sailing for Canada.

The Remington Typewriter Co. of New York has perfected arrangements for the construction of a large plant in Toronto, in which all the Remington machines for the British Empire will be manufactured.

Will Dismantle Ovens

The Hamilton-Otto Coke Co. at Koksotto near Hamilton, O., which has been idle for several years, will be dismantled. The original plant was built in 1901 and included 50 Otto-Hoffman type ovens; eight years later 50 additional ovens were built.

To Sell Iron and Coke

The Lundgren-Stevens Co., 1045 Peoples Gas building, Chicago, has been formed by R. E. Lundgren and J. G. Stevens, formerly of the Matthew-Addy Co. office in Chicago. The new company will deal in pig iron, coal and coke, ferroalloys and fluorspar.

Obituaries

CHARLES S. GAWTHROP, vice president of the American Car & Foundry Export Co., New York, died Oct. 31 at his home in that city. Mr. Gawthrop was 54 years of age. For many years he had been in charge of the plant at Wilmington, Del. He was presented with a cross of the officer of the crown of Italy for his services during the war.

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Patrick F. Bannon, president of the Farrell Foundry & Machine Co., Waterbury, Conn., died at his home there Oct. 19, aged 69. His death was due to acute indigestion.

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Harry Wallace Link, in charge of all purchasing for the Crouse-Hinds Co., Syracuse, N. Y., manufacturer of electrical equipment, died Oct. 18 after a prolonged illness of typhoid fever.

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A. Filson Dalzell, aged 85, 507 Kelly avenue, Wilkinsburg, Pa., died suddenly in his home Oct. 29. He served as a member of Company K, Pennsylvania Volunteers, and of Company C, Fifteenth Pennsylvania Volunteer Infantry in the Civil war. He also was a partner in the old Evans, Clow, Dalzell & Co., now the Pennsylvania works of the National Tube Co., Pittsburgh. Mr. Dalzell was a member of Alexander Hays Post No. 3 of the G. A. R for 30 years, and served as adjutant of that post for many years

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Bruno V. Nordberg, noted inventor of mining machinery, and chairman of the board of directors of the Nordberg Mfg. Co., Milwaukee, died Oct. 30 after an illness of two days. He had been ailing for two years. Born in Finland in 1857, he attended the University of Helsingfors and in 1880 emigrated to America, settling in Milwaukee. His first position was that of a trucker at the E. P. Allis Co. corliss engine works, and while learning the English language, applied himself to machine design, getting quick recognition as an inventive and designing genius. He left the Allis company in 1901 to engage in the manufacture of automatic governors, founding the Nordberg Mfg. Co., which he developed into a company that has achieved especial prominence in the heavy duty engine field, particularly for the economy of steam units. In recent years much progress was made in the design and construction of uniflow and diesel engines. The Nordberg company is noted also for its steam and electric mine hoists, blowing engines, and air and gas compressors.

Wages Holding Up

Conference Board Comments on Results of Its Latest Survey

"It is a remarkable fact that in spite of an industrial depression of some severity, with very few exceptions wage rates have maintained the high levels which were reached in the boom period of last year," says the National Industrial Conference board, New York, in its current review of wages and employment. This statement bears out the general forecast as to the trend of wages made in an article published in IRON TRADE REVIEW June 19.

Continuing to comment on its investigation, the board states:

"Although average hourly earnings of all wage earners dropped 3 cents in August over July, they still remain 127 per cent above the level of July, 1914, and not far from the level of a year ago. 'Real' earnings declined slightly between July and August due to increase in living costs, the purchasing power of hourly earnings falling from 41 per cent to 39 per cent above the July, 1914, level. The board's monthly survey of the cost of living shows very little change for the month, Aug. 15 to Sept. 15, the principal changes being a 2 per cent increase for food and 1 per cent decrease for clothing. The cost of living has decreased 20 per cent since the high peak of July, 1920.

"Evidence that industrial conditions are improving is found in a summary of wage changes throughout the United States during the month ending Oct. 14, made by the board, which reveals 40 increases and six reductions.

"Employment from July to August stood at 71 per cent of the number employed in June, 1920, but comparisons of present conditions with those of a boom period are often misleading and the present conditions reflect a fair course of normal progress. Employment is at least 5 per cent higher than it was in 1914. Further evidence of improvement is shown in an increase of nearly one-half hour in the average week worked per wage earner and of more than an hour in the average hours of plant operation from July to August."

Employment in iron and steel group increased 1.8 per cent in September, compared with August; and payroll totals 2.5 per cent, according to the monthly survey of employment and wages in 52 industries by the United States department of labor. The machine tool group showed an increase in employment of more than 15 per cent. Reports were received from 8820 establishments in the 52 industries.

Employment in all of the manufacturing industries increased 2.1 per cent in September, definitely confirming the upward trend which was reported in August. Aggregate earnings of employes increased 3.3 per cent, and per capita earnings increased 1.2 per cent.

Evidence of the stability of wages this year in the industries represented by the National Metal Trades association appears in the association's report. The averages as prepared by the organization pertain to machine shop, foundry and pattern shop employes, and to common labor. All of the important manufacturing districts are represented.

The composite hourly rate in August was 56.8 cents, and this was the highest of any preceding month in 1924. The composite in January was 55.3; February 54.2; March 56; April 56; May 56.3; June 56.2, and July 56.4. The composite representing actual hourly earnings remained practically stationary through the first eight months of the year. Beginning in January it was 58.9 cents; February 59; March 58.6; April 59.6; May 59; June 59.1; and in July 59 cents.

Bosch Merger Ratified

Stockholders of both Gray & Davis, Inc., Cambridge Mass., and the American Bosch Magneto Corp., Springfield, Mass., have ratified the proposal to merge the two concerns. The plan of consolidation provides that common stockholders of Gray & Davis will receive one share of Bosch stock for every 7½ shares of Gray & Davis and 3¼ shares of Bosch for every share of Gray & Davis preferred. Shareholders also have the option of receiving in liquidation 19 shares of Bosch for $350 cash and 60 shares of Gray & Davis.

Virginia Iron Has Deficit

The Virginia Iron, Coal & Coke Co., Roanoke, Va., reports a net loss of $27,973, after interest, taxes and other charges, for the three months ended Sept. 30, 1924. This compares with a net loss of $51,199 in the preceding quarter and with net income of $170,414 in the third quater of 1923. Net loss for the first nine months of the year amounted to $73,380, after taxes and charges, compared with net income of $528,257, or the equivalent to $3.41 a share on the common stock, for the corresponding period of 1923.

Inland Net is Smaller

The income statement of the Inland Steel Co., for the third quarter ended Sept. 30 shows net earnings from operations of $1,379,006 compared with $2,130,405 in the preceding quarter. After deductions for depreciation, depletion, interest and taxes the net profits for the quarter amounted to $931,384 against $1,497,875. The company declared the regular dividends.

Sheet & Tube Earnings Considerably Lower

The Youngstown Sheet & Tube Co., reports net earnings of $472,899, after depreciation, interest, federal taxes and other charges, for the third quarter of 1924. This compares with earnings of $3,341,346 for the corresponding period of 1923. For nine months the company's net profit was $6,091,406, after all charges against $14,689,899 for the same period of 1923. Total income for nine months of this year was $18,402,206, against $26,414,647 in 1923. The comparative income account for three months and nine months follows:

	For three months ended Sept. 30, 1924	June 30, 1924
Net operating income	$ 4,168,620	$ 5,284,213
Other income	338,968	768,838
Total income	4,507,588	6,053,051
Depreciation, etc	2,919,842	3,068,340
Interest	1,088,847	1,119,838
Federal taxes	26,000	7,000
Net income	$ 472,899	$ 1,857,873

	For nine months ended Sept. 30, 1924	Sept. 30 1923
Net operating income	$16,774,971	$26,414,647
Other income	1,627,235	.....
Total income	18,402,206	.....
Depreciation, etc.	8,436,227	7,574,187
Interest	3,311,573	2,120,561
Federal taxes	563,000	2,030,000
Net income	$ 6,091,406	$14,689,899

Crucible Cuts Its Costs by Improvements

Improvements made by the Crucible Steel Co. of America in the year ended Aug. 31, 1924, at a cost of $2,104,996 have enabled the company to increase its output of finished steel and to reduce its costs of production. These facts were made known by H. S. Wilkinson, chairman of the board of directors of the company, in presenting the annual report to stockholders.

The report showed net profits of $4,250,000 after depreciation and interest charges against $4,611,112 in the preceding year. Total income was $7,703,076 against $6,092,362 in 1923. Common dividends increased from $549,979 in 1923 to $2,199,924 in the year just ended. As a result the surplus of $2,311,133 for one year ago was reduced to $300,125.

The finishing capacity, according to Chairman Wilkinson, has been increased about one-third at the Midland plant, by the addition of new rolling units in our merchant mill. Motors and equipment have been installed for the electrification of the finishing mills at both the Park and Halcomb plants.

Additions in the steel car departments of the General-American Tank Car Corp. at Hammond, Ind., have practically brought the plant personnel up to normal.

Here and There in Industry

Live Information Which Records the Expansion of Various Lines of Productive Enterprise

IN THE past year, Foote Bros. Gear & Machine Co., Chicago, has expanded considerably its advertising and sales activities and has established 17 branch offices, in charge of the men or representatives at the places noted as follows: 321 North Twenty-first street, Birmingham, Ala.; George C. Steil, 740 Commonwealth avenue, Boston; R. F. Mosedale, Jackson building, Buffalo, N. Y.; S. Floyd Keener, 3221 Scranton road, Cleveland; Fred R. Eberhardt, 1275 Broadway, Denver; J. G. Shakman, 316 Caswell block, Milwaukee; J. R. Shays, Jr., 100 Greenwich street, New York; Charles Bond & Co., 617 Arch street, Philadelphia; William G. Kerr, 1306 Keenan building, Pittsburgh; H. L. Shepard, 817 Lewis building, Portland, Oreg.; Erskine & Healy, Ingersoll, Rochester, N. Y.; L. J. Menges, 405 Franklin avenue, St. Louis; National Equipment Co., Salt Lake City, Utah; J. G. Scott, 1143 Henry building, Seattle; Howard J. Wittman, 632 Nasby building, Toledo, O.; Darling Bros., 120 Prince street, Montreal, Que.; and Palmer Electric Co. and Central Dist. Co., Detroit.

* * *

DRAFTING room and offices, photographic room, experimental laboratory, gas analysis laboratory and material testing and appliance testing departments will be housed in the 2-story, 50 x 80-foot plant which the American Stove Co., St. Louis, is having constructed. The laboratories will be used for testing and development work for cooking and heating appliances.

* * *

DIRECTORS of the Bilton Machine Co., Bridgeport, Conn., have reorganized the company with a capital stock of $100,000. The new board of officers is as follows: Clarence E. Bilton, president; N. M. Marsilius, vice president; R. S. Hincks, assistant secretary and treasurer; R. S. Lathe, assistant treasurer and secretary; William J. Grippin, chairman of the board of directors.

* * *

NEW foundry buildings for which the United States Cast Iron Pipe & Foundry Co. now plans for construction at Burlington, N. J., are to be approximately 550 x 600 feet. The new units will include a cleaning shed and other service buildings which will make the total width about 550 feet. The new building will be equipped for the manufacture of cast iron pipe by the de Lavaud centrifugal process.

* * *

FLOYD-WELLS CO., Royersford, Pa., has purchased a furnace through the Ferro Enamel Supply Co., Cleveland, making the second new furnace installation contracted for by that company since spring. The Tennessee Enamel & Mfg. Co., Nashville, Tenn., also has contracted with the Ferro Enamel Supply Co. for a new furnace. R. A. Warner is president of the Ferro company.

* * *

PRODUCTION of a standard curve-top steel truss now is under way by the Union Iron Works, Los Angeles. The new type of truss is designed to carry heavy bottom chord loads, such as monorail crane systems. The new product provides a noncombustible type of construction for garages and industrial buildings, according to Robert Miller, vice president of the Union Iron Works.

* * *

THE new plant of the National Malleable & Steel Castings Co., Indianapolis, the construction of which was started Aug. 1, will be completed by Jan. 1, and will cost approximately $125,000. It is of the leaning roof type with steel framework and stucco finish, and is 100 x 500 feet. It will be used in the heating process in which the castings are placed in ovens and heated for eight days. The ovens for this purpose will be placed in the building shortly.

* * *

NO GREAT amount of additional equipment will be needed for the 3-story, 50 x 92-foot brick and mill construction building being erected for the Raymond Mfg. Co., Ltd., Corry, Pa., according to F. E. Whittlesey, secretary and treasurer of the company. The new building is an addition to the company's main plant and will allow for expansion of several departments badly crowded in the present quarters F. M. Raymond is president of the company, which manufactures high grade wire springs.

* * *

CONSOLIDATED PIPE WORKS, Los Angeles, has increased its volume more than 600 per cent recently. The company manufactures fabricated steel pipe for oil and water wells, tanks, well casings, cattle troughs, etc. The company also gets a royalty on manufacture of a pipe trimmer, invented by A. C. Harper, former mayor of Los Angeles, and present head of the Consolidated company. C. F. Harper, son of the president, is an executive of the company, and A. E. Dalton is head of the operations.

* * *

ULMER MACHINERY CO., Porterville, Cal., has sold its electrical department to R. E. Woods and J. D. Watkins who will operate under the name of the Woods-Watkins Electrical Co. Mr. Woods has been in charge of the Ulmer shop for the past three years and will continue in active charge of the new company for the present. Watkins is construction superintendent of the Southern California Edison Co. The Ulmer Machinery Co. will concentrate on the production of turbine motors, a branch of its industry which has been growing rapidly in the last few years.

* * *

WORK will be begun at once on the new plant of the Hofius Steel & Equipment Co., Seattle, which will move from its present location at First avenue south and Spokane street to a site of 12 acres in the southern part of the city's industrial area. Tentative plans call for a 2-story concrete office building, 45 x 70 feet, structural steel shop 70 x 300 feet; frog and switch shop, 60 x 190 feet; locomotive roundhouse for repair work, 90 x 200 feet; and a warehouse 30 x 200 feet. The construction outlay is estimated at $125,000 and it is expected to have the new plant entirely completed early in 1925.

* * *

AMERICAN BOLT CORP., Chicago, plans constructing a new plant in the central manufacturing district of that city, on West Forty-seventh street near South Turner avenue. A. Epstein is structural engineer for the building which will be 2-story, 285x306-foot, and contain 87,200 square feet in area. A warehouse and shop will be on the first floor, and the offices on the second floor. The American Bolt Corp. is a consolidation of four leading bolt manufacturers of the country, with works at Bayonne, N. J., Columbus, O., Detroit and Chicago. The Chicago plant formerly was operated by the Boss Nut Co. J. A MacLean is vice president and general manager of the American company

Expect Machinery Improvement

Elimination of Market Uncertainty by Elections Should Have Wholesome Effect—Scattered Buying in Several Districts Increases Activity—Few Large Lists Are Current—Used Tool Demand Only Fair—Crane Awards Continue Heavier

ELIMINATION of uncertainty and hesitancy in the machine tool market is expected to be accomplished to some degree by the passing of presidential elections, resulting in an upward movement in demand. Scattered buying in several districts during the past week added to the activity causing October in many instances to be the best month since spring.

Railroad buying is more active but single tool purchases still predominate. Among buyers of the past week are Kansas City Southern, Lehigh Valley, Southern, Burlington, and Lehigh & New England. Industrial activity is limited, with automotive demand especially quiet. The Chesapeake & Ohio railroad has appropriated sufficient funds for only a quarter of its 40-tool list recently closed. General Electric Co., National Tube Co., American Sheet & Tin Plate Co. also are buying piecemeal.

Two of the largest lists now in the market, in number of machines, are those of the Mayfair Mfg. Co., Boston, for 14 wood and metalworking machines and the Cleveland board of education for 68, bids on the latter closing Nov. 10.

A fair measure of activity is noted in the used tool market with sales mostly involving small expenditures. The market is spotty.

Crane awards are heavier with inquiry also in more quantity. Installations of more than one or two cranes each continue lacking, but bookings of builders are in better volume.

Single Tools Form Most of Buying

NEW YORK, Nov. 4.—Scattered buying again features the eastern machine tool market. Should today's election result in no political upset, substantial improvement is expected. Virtually all the leading orders of the past week are from the railroads. The Lehigh Valley, inquiring for several machines, has closed on a turret lathe and two engine lathes, one of which is 42 inches. Possibly the largest award is that of the Lehigh & New England, involving six machines. This equipment comprises a G. A. Gray Co. planer, a turret lathe from Warner & Swasey Co., a heavy duty shaper, from the Ohio Machine Tool Co., a 28-inch upright drill press, purchased from Frank Toomey Inc., and a 16-inch and a 20-inch lathe, both bought from the W. E. Shipley Machinery Co.

The Kansas City Southern has closed on a combmination journal turning and axle lathe; the Southern on a 5-foot radial drill and the Burlington on a 48-inch car wheel borer, these orders all being placed in the East. The Griffin Wheel Co., Chicago, has closed also on a 48-inch car wheel borer, with a builder in this district.

The Chesapeake & Ohio railroad has appropriated sufficient funds for only about a quarter of its list of 40 machine tools. This equipment as noted in a recent issue, has been purchased. However, company officials expect to be able to purchase the remainder of the list within the next three months.

Automotive demand in this district is dull with the International Motors Co., New Brunswick, N. J. one of the few prospective buyers at this time. It is believed that International Motors will send out inquiries for some equipment shortly. P. W. Stange, 64 North Ninth street, Brooklyn is inquiring for eight machines, including three lathes, two shapes, one planer and one milling machine.

Improvement Continues Slowly

CLEVELAND, Nov. 4.—Improvement in the local machine tool market continues slowly, with buying still spotty. Sales of more than single tools are lacking, but several dealers report a better aggregate for October than any month since spring. Machine tool builders also have better bookings but their business still is far below normal. Inquiries point to a larger volume of bookings in November and December.

Used equipment sales have improved slightly but price competition still is a factor and standard used tools are moving at quotations barely profitable to dealers. An improvement is anticipated in the better inquiries now current.

Crane activity was maintained during the past week, one builder booking 11 orders in the last 10 days.

Small Single Tool Orders Rule

PITTSBURGH, Nov. 4.—Misellaneous machine tool business holds sway in this territory, small orders being the rule. The National Tube Co. bought a thread milling machine for Gary, Ind. While some dealers expect better business in November than in October after the election is settled, others are of the belief that in many cases the election was used as an excuse rather than a reason for deferred action. One dealer here reports the taking during the past two or three weeks of several $500 orders and one or two involving up to $3000 apiece.

In the used machinery market a fair measure of activity is noted, the Marr-Galbreath Machinery Co. having sold several large machines including an 84-inch multiple punch and a 110-inch multiple punch. Other sales by this interest include: Two No. 11½ compression riveters, one 102-inch bull riveter, one each No. 1 and No. 2 horizontal punch, one heavy self-feed rip saw, one 30-inch x 14-foot lathe, one 15-inch crank shaper, a large arbor compressor, rotary bevel shear, a press, tumbling barrel, No. 6 press, a 2½-inch bolt cutter, and 8 x 8-inch air forming roll and a 10-inch x 5-foot lathe. Another dealer sold a 48-inch rotary planer to a Canadian user.

Inquiries are fairly plentiful, including one from the Carnegie Steel Co. for a number of small machines and several larger ones such as four lathes, a planer and a turret lathe, all for Edgar Thomson works. The American Sheet & Tin Plate Co. put out an inquiry for a horizontal boring mill for Canton, O.

October Totals Large

BOSTON, Nov. 4.—Improved demand for machine tools is reported by prominent Boston dealers and interest in tools undoubtedly is more active throughout the district.

Recent sales include two planers, one a 36-inch x 26-foot and the other 48-inch x 14-foot to a Rhode Island manufacturer, the total contract running in excess of $20,000. A Vermont manufacturer bought a press and a lathe. Another press and several drills were sold to a Boston radio equipment manufacturer. Two textile machine manufacturers bought five tools and further buying is in prospect from these companies. Despite the temptation to await the result of the election before buying, October sales of new tools reached a greater total at Boston than for any month since June.

Used tools, perhaps because of the new tool sales, have dropped off somewhat and at present both prices and demand for used equipment are reported dull. New tool prices are decidedly firm with indications that considerable buying will be done in November.

The Mayfair Mfg. Co., with offices here and plant at Jamaica Plain, Mass., manufacturer of automobiles, is in the market for wood and metalworking equipment. The company invites proposals on the following equipment, either new or used in good condition. F. L. Hamilton is a member of the company.

Sheet Metal Working Machinery

Crown rolling machine
Wiring machine
Seaming machine
Rolling-in machine
Trimming machine
Metal press or brake
Hinge forming machine

Wood Working Machinery

Band saw
Two spindle double shaping machine
Circular saw tilting table, 40-inch
Circular saw fixed table, 40-inch
Surface planing machine 14 or 16-inch
Thickness planing machine 20 or 22-inch
Boring machine, two-cylinder drill

Single Tool Buying Predominates

CHICAGO, Nov. 4.—Single-tool buying has predominated in the Chicago machinery market in the past week. The Karas Electric Co., Chicago, has bought a No. 6 consolidated press. The Stromberg Motor Devices Co., Chicago, has added a swaging machine to its equipment. More tool room equipment has been ordered by the National Trading Co., Chicago. The Studebaker Corp., South Bend, Ind., has placed a motor-driven disk grinder for its new foundry.

Some dealers believe that the Rock Island railroad will begin placing this month some of the machine tool equipment it took bids on several months ago. December is expected to see the Chicago board of education taking tenders for the technical high school equipment not yet placed, including a score of lathes. Orders by the Ajax Motors interests at Racine, Wis., recently are said to have included some milling machines.

Machinery dealers have met with considerable "wait until after election" talk but they do not look for an avalanche of business to follow a favorable poll. Some dealers believe the slack market will continue until the new year. One machinery house found October almost double September in volume of business. Practically every seller recorded at least a slight gain last month over September.

Bids have been opened on approximately $500,000 worth of hydroelectric equipment by the Merced Irrigation district, Merced, Cal.

Activity Centers On Planers

CINCINNATI, O., Nov. 4.—Activity in the machine tool market the last week centered on the sale of planers. At least six planers were sold by manufacturers in this center. G. A. Gray Co. reported the sale of a 36-inch planer to the Lehigh & New England railroad and a 48-inch planer to the Bradford Tile Co., Bradford, Pa. The Cincinnati Planer Co. sold three standard planers to Eastern companies and several used machines. Other sales for the past week included boring mills, shapers, drilling presses and lathes.

Sales in a majority of the instances involved single tools. A number of inquiries are before the trade from the railroads involving single tools. Manufacturers and builders reported business exceptionally good the past week. Indications are that there will be a material improvement in business after the election as many of the manufacturers are in possession of a number of inquiries from the railroads and other sources on which they will close immediately.

Dealers in used machinery report a slight improvement in business. There is much used machinery on the market which buyers say they can get at such substantial reductions compared with new, usefulness being about equal, that they prefer the used.

Crane Awards and Inquiries of the Week

Orders Placed

Three large wrecking cranes for the New York, New Haven & Hartford railroad, to Industrial Works.

Two 25-ton locomotive cranes, 60-foot boom, for the Public Service Corp., Newark, N. J., for operation in connection with a new gas plant being erected at Harrison, N. J., to the McMyler Interstate Co.

Two 15-ton handpower cranes 30-foot span, equipped with wire rope hoists for the New Jersey Zinc So.'s new sheet mill at Palmerton, Pa., to the Armington Engineering Co.; also two 2-ton electric transfer cranes, 30-foot span, and one 2-ton electric trolley hoist to the Euclid Crane & Hoist Co.; this report takes precedence over that in last week's issue.

Single Installations

35-ton barge crane for the United States Engineer's office, Chicago, to McMyler-Interstate Co.

25-ton, 2-motor stationary gantry crane, 45-foot span, for the Erie railroad, for installation at Newark, N. J., to the Shaw Electric Crane Co.

35-ton crane for a Chicago coal dealer, to McMyler-Interstate Co.

25-ton crane for a supply company, Toledo, O., to McMyler-Interstate Co.

23-ton crane for a coal mining company in Illinois, to McMyler-Interstate Co.

20-ton crane for Fraser River Dock & Stevedoring Co., Fraser River, B. C., to Brown Hoisting Machinery Co.

20-ton electrically operated locomotive crane, for the Guaranty Construction Co., 2 Rector street, New York, for export to Cuba, to the Brown Hoisting Machinery Co.

15-ton gasolene operated locomotive crane for A. Guthrie & Sons, St. Paul, to the American Hoist & Derrick Co.

15-ton used locomotive crane, 50-foot boom, for A. Finkle & Sons, Chicago, to unnamed seller.

12½-ton, 2-motor crane, 38-foot span, for the Southern railway, Washington, D. C., to the Pawling & Harnischfeger Co.; this crane was included in its recent list, but was held up at the time of the placing of the other equipment.

10-ton crane for a contractor in Chicago, to McMyler-Interstate Co.

10-ton crane for a contractor in Cleveland, to McMyler-Interstate Co.

10-ton crane for a building material dealer on Long Island, N. Y., to McMyler-Interstate Co.

10-ton shipbuilding crane for the American Shipbuilding Co., Cleveland, to McMyler-Interstate Co.

10-ton crane for a contractor in Toledo, O., to McMyler-Interstate Co.

10-ton crane for a sand company in Detroit, to McMyler-Interstate Co.

10-ton crane for J. H. Tillman, Portland, Oreg., to Brown Hoisting Machinery Co.

10-ton crane for a contractor in Michigan City, Ind., to McMyler-Interstate Co.

5-ton crane with two 3-ton hooks, for the Youngstown Sheet & Tube Co., Youngstown, O., to the Morgan Engineering Works.

Monorail system, with transfer bridges, for the foundry of the Chapman Valve Co., Indian Orchard, Mass., to the tramrail division of the Cleveland Crane & Engineering Co.

Orders Pending

50-ton electric crane, 10-ton auxiliary, 42-foot span, for a power unit for the J. G. White Engineering Corp., 43 Exchange Place, New York; bids closed. This company has just issued an inquiry for a 10-ton handpower crane for shipment to Bowling Green, Ky.

Cranes for the National Tube Co., Gary, Ind.; action expected soon.

Cranes, car dumpers, charging machines, transfer cars, etc., for the Carnegie Steel Co., Homestead and Carrie works, Pittsburgh; bids being considered.

Recent Industrial Business Changes

AMERICAN BRIDGE CO. is moving its Cleveland office to 1450 Rockefeller building, from 1509 Guardian Bank building. This is the last unit of the Steel corporation offices in Cleveland to transfer its headquarters to the Rockefeller building.

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Star Machinery Co., Seattle, has moved its headquarters into its new building at 1737 First avenue south.

* * *

The Barnum Iron Foundry, New Haven, Conn., has been sold to the Langrock Fur Co.

* * *

Diamond Hairpin Co., Chicago, has reclassified its capital stock and increased the number of its directors from four to seven.

* * *

Russell Gear & Machine Co., Ltd., Toronto, Ont., has changed its name to the Canadian Acme Screw & Gear, Ltd.

* * *

William M. Ballard, Inc., has been formed at Syracuse, N. Y., to take over the business of William M. Ballard of railroad construction work.

* * *

Newark Wire Cloth Co., Newark, N. J., has established a branch office in the New England states, located at 66 Hamilton street, Cambridge, Mass., with John G. Loring in charge.

* * *

The Pax Piston Ring Co., Muskegon, Mich., and the No-Leak-O.-Piston Ring Co., of the same city, have merged their interests. The latter company moved its offices from Baltimore about a year ago.

* * *

Fremont Aluminum Castings Co., Fremont, O., is the name of the former Hotz Foundry & Mfg Co., which is in bankruptcy. The plant and equipment of the latter company has been leased by the former from the trustee.

* * *

Commercial Marine & Auto Works, Tacoma, Wash., has changed its name to the Snead-Wright Engineering Co., and has increased its capital from $7500 to $30,000. McLillan & Murray, Fidelity building, are interested in the company.

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L. A. Sanger has opened offices at 918 Hanna building, Cleveland, for the purchase and sale of steel sheets, strips and plates, washer and stamping material. He had been connected wtih A. I. Sanger & Son several years previously.

* * *

Joseph Casse 369 Pine street, San Francisco, has been appointed representative on the Pacific Coast for Ste. Ame. Des Acieries D'Angleur of Tilleur, Belgium, one of the largest producers of rails, shapes, plates and wire products in that country.

* * *

The Austin Co. of California announces the removal of its San Francisco office to greatly enlarged quarters at 244 Kearny street. Recently the headquarters staff of the Austin Co. of California, at Los Angeles, moved into its new home at 777 East Washington street.

New Construction and Enterprise

Where additional information is presented, reference is made to date of issue in which previous item appeared.

BIRMINGHAM, ALA.—Baldwin, Eshelman & Gaskill Power Equipment Co. has been incorporated by John R. Baldwin, Joseph W. Eshelman, Empire building and C. J. Gaskell to manufacture and deal in power equipment.

BIRMINGHAM, ALA.—Peerless Grate Bar Co. has been organized to manufacture and deal in grate bars with H. K. Miner as president and Susie M. Milner as secretary, with offices in the Jefferson County Bank building.

BIRMINGHAM, ALA.—The Alabama Ford Auto Safety Brake Co., Inc., has been chartered by J. I. Lovelady, B. L. Smith, and James T. Blankinship, Farley building, to operate automobile repair station and manufacture accessories.

LITTLE ROCK, ARK.—Arkansas Central Power Co., 115 West Fourth street, will construct a $25,000 automatic electric substation at 402 West Twenty-third street.

LOS ANGELES—Tractometer Co. has awarded contract to the Union Iron Works for steel constructed building at 522 West Slauson avenue.

LOS ANGELES—Mack International Motor Truck Corp., 1628 East Seventh street, has awarded contracts for constructing 1 and 2-story warehouse and service station *Noted Oct.* 2.

LOS ANGELES—American Manganese Steel Co. plans constructing plants on Slauson avenue for the manufacture of alloyed steel. D. H. Young, this city, has been retained as architect on the proposed structure.

LOS ANGELES—Standard Slotted Pipe Co., and the McEvoy Well Cleaner Co. have had plans prepared for constructing a 1-story, 60x160-foot steel and brick plant on West Slauson avenue.

LOS ANGELES—Southern California Fence Co. expects to construct a plant here soon. M. A. Schumaker is president of the company with offices at 3651 Whittier boulevard. Only gates and fence posts now are made.

OAKLAND, CAL.—Quality Enameling & Porcelaining Co., 1634 Howard street, San Francisco, plans constructing 1-story, 150x180-foot plant. L. P. Nutchers is president.

SAN PEDRO, CAL.—Associated Oil Co. has awarded contracts to the Union Iron Works for constructing a warehouse and garage.

BRIDGEPORT, CONN.—The Atlantic Foil Co. has been incorporated for $150,000 to make and deal in foil, lead and other products, by Clifford B. Nilson and others.

BRIDGEPORT, CONN.—American Chain Co. will construct a chemical laboratory, the first floor of which is to be devoted to machine testing. T. J. Pardy Construction Co., 1481 Seaview avenue, has been awarded the general contract.

BRISTOL, CONN.—Zinn Corp. has been organized with $50,000 capital, to make and deal in articles of brass, iron and other metals, by Marvin D. Edgerton and others of Bristol.

MIDDLETOWN, CONN.—Russell Mfg. Co. has awarded contracts for constructing 2-story, 48x144-foot plant to D. O'Brien & Sons Co., 15 McDonough place, for the manufacture of leather belting.

NEW HAVEN CONN.—The American Steel & Wire Co. will construct a 40 x 120-foot addition to its plant here.

NEW HAVEN, CONN.—National Welding Co. plans constructing 1-story, 45x100-foot plant for which Westcott & Mapes, Orange, are engineers. *Noted Oct.* 30.

NEW HAVEN, CONN.—The Victory Cutlery Co., Inc., has been formed with $50,000 capital, to manufacture hardware, cutlery and au-

tomobile accessories, by B. N. Beard, Shelton, Conn., William Munson, Middlebury, Conn., and Charles S. Victory, Derby, Conn.

WALLINGFORD, CONN.—Oddy, Hodgson & Son will build an addition to their plant here.

WALLINGFORD, CONN.—Paulson Tool Co., Inc., recently organized, has constructed a plant and has started producing railroad steel tools. *Noted Sept.* 11.

TAMPA, FLA.—South Tampa Electric Co., subsidiary of the United States Export Chemical Corp., has been incorporated for $160,000 to construct electrical lighting and power plant on Ruskin road, with Harry L. Pierce, as president; and Norton P. Webber, 304 South Westland avenue, as secretary.

ATLANTA, GA.—Georgia Institute of Technology will construct a new $100,000 chemistry building, for which miscellaneous equipment will be purchased.

ATLANTA, GA.—Davidson & Kennedy Co., 872 North Ashby street, will construct a $17,000 plant at Jefferson and Hornady street, 2-story, brick, for its business in oil mill machinery.

CHAMPAIGN, ILL.—Gollos Radio Corp., 332 North Hickory street, has been incorporated with $100,000 capital, to manufacture and deal in radios, radio equipment and accessories, by John H. Thornburn, R. I. Burke, C. A. Lloyd, L. R. Rech, Anatole Gollos, and Fred F. Munson.

CHICAGO—The International Harvester Co., 606 South Michigan avenue, is reported as seeking a 500-ton crank press.

CHICAGO—Stewart Vacuum Machine Co., 4527 Ravenswood avenue, plans constructing plant addition costing about $25,000.

CHICAGO—The Mather Stock Car Co. is reported as seeking a new table shear for cutting galvanized sheets up to 8-foot in width and 16 gage.

CHICAGO—Crescent Dental Mfg. Co. has retained C. W. Lampe, 155 North Clark street, as architect for 2-story, 50x125-foot manufacturing plant, E. L. Chatt, 2214 South Sawyer street, is president of the Crescent company.

CHICAGO—Motoradio Products Co., 668 West Randolph street, has been incorporated for $50,000 to manufacture and deal in electrical devices and supplies, by J. C. Mehan, R. D. Grant and R. S. Lewis.

CHICAGO—Chicago Bearing Metal Co. has let contracts to the Austin Co., 160 North La Salle street, for 1-story, 66x150-foot plant at 2234 West Forty-third street. C. A. Bickett, 310 South Michigan avenue, is president of the Chicago Bearing company.

CHICAGO—M. E. Devine has retained Howard Hahn, 9 South Clinton street, as architect for 1-story, 100x159-foot garage and repair shop. A. Nelson & Sons, 1106 North Central Park avenue, are general contractors. M. E. Devine is located at 54 West Randolph street.

CHICAGO—Enterprise Boiler & Tank Works, 2308 Wabansia avenue, has awarded contracts to Charles Laken, 606 South Dearborn street, for constructing 1-story, 50 x 140-foot plant for boiler manufacturing. Gallup & Joy Architectural & Engineering Co., Inc., 646 North Michigan avenue, is architect. *Noted April* 24.

CHICAGO—Nye Tool & Machine Co. has awarded contracts to Frank H. Stowell, 115 South Dearborn street, for 1-story, 100 x 300-foot machine shop. Mundle & Jansen, 39 South La Salle street, are architects. H. G. Nye, 112 North Jefferson street, is president and treasurer. *Noted May* 8.

CHICAGO—Chicago Faucet Co. has retained Wolf, Sexton, Harper & Trueax, 7 West Madison street, as architects for a 2-story, 55x65-foot plant of brick, stone and reinforced concrete at 2700 North Crawford avenue. E. C. Brown, that address, is president of the Chicago Faucet Co.

CHICAGO—Sinko Tool Mfg. Co. is planning 1-story, 92x95-foot brick and stone plant on Crawford near Lake street. Melvin A. Nelson, 1720 north California avenue, is architect. *Noted March* 27.

HOMEWOOD, ILL.—Bert Heuer, has awarded contracts to T. D. Hodson & Son, Tapper building, Harvey, Ill., for constructing 1-story, 55x129-foot garage and repair shop, for which E. G. McClellan, 6441 Cottage Grove avenue, Chicago, is architect.

MACOMB, ILL.—American Steel Products Co. has awarded contracts to the Truscon Steel Products Co., 165 East Erie street, Chicago, for 28x112-foot side addition to its warehouse. H. L. Gaddis, Macomb, is in charge of the construction.

MT. VERNON, ILL.—Mt. Vernon Car Mfg. Co. is taking bids for a 1-story, 303 x 478-foot car foundry for which Neiler, Rich & Co., 431 South Dearborn street, Chicago, are engineers.

RIVER FOREST, ILL.—Charles Marott has retained Wolf, Sexton, Harper & Trueax as architects for 2-story, 50x90-foot garage and automobile repair shop on Harlem avenue and William street.

EVANSVILLE, IND.—Graham Bros. Motor Truck Co. plans a 1-story addition to its auto truck plant on Springtown road.

INDIANAPOLIS—Indianapolis Bolster Spring Co. is inquiring for a plate shear and a hydraulic press for punching 1-inch plates.

INDIANAPOLIS—Indiana Service Corp. plans constructing 1-story, 200 x 200-foot brick and steel machine shop costing about $120,000. R. M. Feustel, Traction terminal, is president of the company.

NEW ORLEANS—Enterprise Sheet Metal Works, Inc., has been chartered with Fred C. Huff, 713 Bartholomew street, as president and Albert Gerding, 2222 Josephine street, as secretary.

NEW ORLEANS—Star Service Hanger Co., 632 Commerce street, will start producing 40,000 wire coat hangers a day, as soon as machinery is installed, according to James D. Coney, secretary and treasurer of the company. H. C. Ruen is president of the company which maintains seven plants, others being in Detroit, the home office, Cincinnati, Dallas, Atlanta, Philadelphia, and Rock Island, Ill.

BALTIMORE—Charles A. Bowers has acquired the plant formerly that of the American Tool & Machine Co., Belair road and Southern avenue, where he will operate a machine shop.

BALTIMORE—Von Schlegell-Fox Motors, Inc., 1203 North Charles street, has been organized with $100,000 capital, by Max Von Schlegell, Louis Fox and Davis P. Milliman, to own and operate a garage and service station.

CAMBRIDGE, MASS.—Gray & Davis Corp., manufacturer of motor vehicles, lighting apparatus and tools, has been reorganized with $898,185 capital, by Arthur T. Murray, Springfield, Mass., Gustave J. Lang, Brighton, Mass., and F. Dewey Everett, Milton.

DORCHESTER, MASS.—Stilphen Motor Co., 395 Columbia road, is in the market for machinery and tools for an automobile repair shop and garage.

FALL RIVER, MASS.—Terry & Crawford, Blossom street, is in the market for blacksmith and repair shop tools.

FALL RIVER, MASS.—L. Harris, Mohican Garage, Central street, plans constructing 1-story, 120x130-foot repair and service garage. R. Deardon, 38 Border street, is architect.

LYNN, MASS.—Joseph E. Knox & Co., die manufacturers, plan constructing a plant on Broad street. Plans call for the completion of the plant within 12 weeks.

SAUGUS, MASS.—Uno Ventilator Co. has been incorporated for $50,000 by Matthew J. Tobey and Alice C. Tobey, Winchester, Mass., and Lilly A. Tobey of Jamaica Plain, Mass.

SOUTH BOSTON, MASS.—Louis Shepard Co., First street, plans constructing 1-story, 55x300-foot plant on Walnut street. Clifford & Roeblad, 101 Tremont street, are architects and engineers.

SPRINGFIELD, MASS.—Walsh Boiler & Iron Works, Inc., has been formed with 1000 shares no par value common stock, by Irene O. Lewis, Anne Lewis and Richmond Lewis.

SPRINGFIELD, MASS.—Boston & Maine railroad has awarded Ernest F. Carlson Co., 264 Main street, contracts for 1-story, 78 x 180 x 91-foot engine house addition.

WORCESTER, MASS.—Morgan Constructing Co., 14 Belmont street, is planning construction of a 1-story, 150 x 250-foot plant on Belmont street, for the production of mill machinery.

BENTON HARBOR, MICH.—R. B. Collis Sprayer Co. has awarded contracts to Joel Pearson, Stevensville, Mich., for 2-story, reinforced concrete plant on Elm street. Homer Harper, Battlement building, are architects. R. B. Collins, 190 Territorial avenue, is general manager of the Collis company.

DETROIT, MICH.—McRae Steel Co. plans constructing 1-story, 100 x 200-foot warehouse of brick and structural steel. W. Corman, 11700 Russell street, is vice president.

DETROIT—Briggs Mfg. Co. builder of automobile bodies, has awarded the Austin Co., Cleveland and Chicago, contract for constructing a metal storage warehouse. Purchases of material will be handled through the Chicago office of Austin Co.

MANISTEE, MICH.—A. D. Joslin Mfg. Co., 223 West Erie street, Chicago, manufacturer of pole line equipment, contemplates remodeling its plant here and installing additional equipment.

PEQUAMING, MICH.—Ford Motor Co. has awarded Worden Allen Co., 208 South La Salle street, Chicago, contract for 1-story, 40x56-foot power house. A. Kahn, Inc., 1000 Marquette building, Detroit, is architect. Edsel Ford, 14310 Woodward avenue, Detroit, is president of the Ford company.

MINNEAPOLIS—H. N. Knott, clerk, city hall, is in charge of constructing 1-story, 68 x 92-foot brick tool house for which various equipment will be required.

MINNEAPOLIS—Eckland Pres Auto Bodies, 2800 Lyndale avenue, has let contracts to Arrell Suhring Co., 167 Western avenue, for constructing 2-story, 88 x 108-foot brick plant building.

KANSAS CITY, MO.—A new steel company is to be incorporated here with $750,000 capitalization. The old McKenna Mill Co. plant at Twelfth street and the terminal tracks is to be purchased. L. W. Conroy, Detroit, is president of the new company, which is being backed by the Kansas City Steel & Wire Co.

KANSAS CITY, MO.—Montgomery Ward & Co., have awarded contracts to Wells Bros., 53 West Jackson street, Chicago, for 9-story, 108x306-foot manufacturing building for which McKecknie & Trask, 723 Gloyd building, are architects. Andrew Young, St. John and Belmont avenues, Kansas City, is vice president of Montgomery Ward & Co.

KANSAS CITY, MO.—Motopower Mfg. Co. has awarded contracts to Abe I. Morris, 410 New Center building, Fifteenth and Troost

(*Continued on Page* 1260)

Warehouse Steel Prices

Quotations at Cents Per Pound at Leading Market Centers

STEEL BARS

Boston	3.265c
Buffalo	3.30c
Chicago	3.00c
Cincinnati	3.30c
Cleveland	3.10c
Detroit	3.15c
Los Angeles	3.00c
New York	3.24c
Philadelphia	3.10c
Pittsburgh	2.90c
San Francisco	2.85c
Seattle	3.25c
St. Louis	3.15c
St. Paul	3.25c

IRON BARS

Boston	3.265c
Buffalo	3.35c
Chicago	3.00c
Cincinnati	3.30c
Detroit	3.15c
New York	3.24c
Philadelphia	3.10c
St. Louis	3.15c

REINFORCING BARS

Boston	3.25c to 3.50c
Buffalo	3.40c
Chicago	2.10c to 2.25c
Cincinnati	3.30c
Cleveland	3.10c
Detroit	3.15c
Los Angeles, C. L.	3.60c
Los Angeles, L. C. L.	4.00c
New York	2.80c
Philadelphia	2.80c
Pittsburgh	2.15c to 2.20c
San Francisco, C. L.	3.35c
San Francisco, L. C. L.	3.80c
Seattle	3.50c

STANDARD STRUCTURAL SHAPES

Boston	3.365c
Buffalo	3.40c
Chicago	3.10c
Cincinnati	3.40c
Cleveland	3.20c
Detroit	3.25c
Los Angeles	3.00c
New York	3.34c
Philadelphia	2.95c to 3.10c
Pittsburgh	3.00c
San Francisco	3.00c
Seattle	3.35c
St. Louis	3.25c
St. Laul	3.35c

PLATES

Boston	3.365c
Buffalo	3.40c
Chicago	3.10c
Cincinnati	3.40c
Cleveland, ¼-inch and thicker	3.20c
Cleveland, 3/16-inch	3.425c
Detroit	3.20c
Detroit, 3/16-inch	3.45c
Los Angeles	3.00c
New York	3.34c
Philadelphia	2.95c to 3.10c
Philadelphia, 3/16-inch	3.06c to 3.26c
Pittsburgh	3.00c
San Francisco	3.00c
Seattle	3.25c
St. Louis	3.25c
St. Paul	3.35c

NO. 10 BLUE ANNEALED SHEETS

Boston, 3/16-inch	3.915c
Buffalo	4.05c
Chicago	3.80c
Cincinnati	3.90c
Cleveland	3.45c to 3.76c
Detroit	3.95c
Los Angeles	4.05c
New York	3.89c
Philadelphia	3.75c
San Francisco	3.95c
Seattle	4.50c
St. Louis	3.90c
St. Paul	4.05c

NO. 28 BLACK SHEETS

Boston	5.00c
Buffalo	4.75c
Chicago	4.50c
Cincinnati	4.55c
Cleveland	4.35c to 4.55c
Detroit	4.65c
Los Angeles	5.15c
New York	4.60c
Philadelphia	4.75c
San Francisco	5.00c
Seattle	5.50c
St. Louis	4.65c
St. Paul	4.85c

NO. 28 GALVANIZED SHEETS

Boston	6.00c
Buffalo	5.85c
Chicago	5.50c
Cincinnati	5.65c
Cleveland	5.45c to 5.65c
Detroit	5.75c
Los Angeles	6.00c
New York	5.60c
Philadelphia	5.85c
San Francisco	5.90c
Seattle	6.50c
St. Louis	5.65c
St. Paul	5.65c to 5.90c

BANDS

Boston	4.015c
Buffalo	4.05c
Chicago	3.65c
Cincinnati	3.95c
Cleveland	3.85c
Detroit	3.80c
Los Angeles	4.00c
New York	3.99c
Philadelphia	3.85c
Pittsburgh	3.60c
San Francisco	3.60c
Seattle	4.25c
St. Paul	3.90c

HOOPS

Boston	5.50c
Buffalo	4.40c
Chicago	4.15c
Cleveland, 1-inch and wider No. 20 and heavier	3.85c
Cleveland, narrower than 1-inch	4.35c
Detroit	4.30c
New York	4.49c
Philadelphia, ¾-inch and wider, 20 gage and heavier	3.85c
Philadelphia—narrower than ¾-inch	4.35c
Pittsburgh	3.60c
Seattle	5.00c
St. Paul	4.70c

COLD FINISHED STEEL

Boston (shapes)	4.55c
Boston (rounds)	4.05c
Buffaló (rounds)	4.20c
Buffalo (shapes)	4.70c
Chicago (shapes)	4.30c
Chicago (rounds)	3.80c
Cincinnati (rounds)	4.05c
Cincinnati (shapes)	4.55c
Cleveland (rounds)	3.90c
Cleveland (shapes)	4.40c
Detroit (rounds)	4.10c
Detroit (shapes)	4.60c
Los Angeles (rounds)	4.75c
New York (rounds)	4.05c
New York (shapes)	4.55c
Philadelphia (rounds)	3.95c
Philadelphia (shapes)	4.45c
Pittsburgh (rounds)	3.80c
Pittsburgh (sq. hex. and flats)	4.30c
San Francisco (rounds)	5.25c
Seattle (rounds)	4.75c
St. Paul (rounds)	4.05c

WELDED PIPE

Discounts from warehouse, New York City
Standard Steel Pipe
(Subject to Shading)

	Black	Galvanized
¼-⅜-inch butt	—31	+ 2
½-inch butt	—41	—24
¾-inch butt	—46	—32
1/3-inch butt	—48	—34
3½-inch lap	—44	—30
7-8-inch lap	—41	—11
9-10-inch lap	—35	— 8
11-12-inch lap	—34	— 6

Wrought Iron Pipe

	Black	Galvanized
¼-⅜-inch butt	+44	+78
½-inch butt	— 4	+19
¾-inch butt	—11	+ 9
1-1½-inch butt	—14	+ 6
2-inch lap	— 5	+14
3-6-inch lap	—11	+ 6
7-12-inch lap	— 3	+16

Iron and Manganese Ores and Minerals

Iron Ore

LAKE SUPERIOR ORES

Per Gross Ton Lower Lake Ports

Old range bessemer, 55 per cent iron	$5.65
Mesabi bessemer, 55 per cent iron	5.40
Old Range nonbessemer, 51½ per cent iron	4.90
Mesabi nonbessemer, 51½ per cent iron	4.75

EASTERN LOCAL ORES

Cents per unit delivered at Eastern Pennsylvania and New Jersey furnaces

Foundry and basic 53 to 63 per cent	9.00 to 10.00
Copper free low phosphorus 53 to 65 per cent	nominal

FOREIGN IRON ORE

Cents per unit, c.i.f. Atlantic ports

Spanish low phosphorus, 52 to 54 per cent	9.50 to 10.00
Algerian low phosphorus, 52 to 54 per cent	10.50 to 11.00
Swedish and Norwegian low phosphorus, 68 per cent	11.00 to 11.50
Swedish foundry or basic, 66 to 68 per cent	9.00 to 10.00
Spanish foundry or basic, 50 to 54 per cent	8.00 to 9.00
Algerian foundry and basic, 50 to 54 per cent	8.00 to 9.00

Manganese Ore

Prices do not include duty at rate 1 per cent per pound of metallic manganese contained.

Brazilian, minimum 47 per cent....nominal
Indian, minimum 47 per cent....nominal
Caucasian, 53 to 55 per cent....
.....Ordinary, nominal c.i.f. tidewater
.....Washed, 39 cents c.i.f. tidewater

Fluor Spar

85 and 5 per cent grade

Washed gravel, Kentucky and Illinois mines, per net ton	$18.00 to 23.50
Washed gravel, imported duty paid eastern tidewater, per net ton	17.00 to 18.00

Bourne-Fuller Service

includes immediate shipment of all Iron and Steel materials from Cleveland and Cincinnati

Warehouses

If you are not receiving our Stock-list we shall be glad to send it to you regularly upon request.

Upson Works

Open Hearth Steel Bars for Special uses. Also a complete line of Bolts and Nuts. Prompt Shipments.

THE
BOURNE-FULLER CO.
Iron, Steel
Pig Iron
Coke
CLEVELAND

New York **Chicago**
San Francisco
Cincinnati **Detroit**

Construction and Enterprise

(*Continued from Page* 1257)

streets, for a manufacturing building to be constructed between Prospect and Montgall on the Missouri Pacific railroad tracks. H. L. Finnegan, 3028 Highland avenue, is in charge of the construction for the Motopower company.

ST. LOUIS—The St. Louis Casting Co., 118 Malt street, is in the market for a 200 to 300-ton hydraulic vertical press.

ST. LOUIS—Grip-Tite Curtain Rod & Metal Co. has been incorporated for $50,000 by Louis Rosenblatt, 6625 Washington street, and E. W. Oliver, 3956 Natural Bridge.

ST. LOUIS—J. DeF Garrison, Kansas City, has been awarded contracts for constructing 1-story, 100x200-foot garage on Scanlan avenue. Peoples Motorbus Co. is lessee. R. W. Meade, 535 Adelaide avenue, University City, Mo., is president. *Noted Sept.* 25.

ST. LOUIS—Kaysing Iron Works, 2710 North Twenty-fifth street, has purchased a site on Seventeenth and Clinton street, where it will erect a 2-story brick building to be used as a branch plant. William G. Kaysing is president.

UNIVERSITY CITY, MO.—John G. Mueller, 1064 Hamilton street, St. Louis, will construct a 1-story, 50x100-foot, brick shop building at 6320 Olive boulevard.

ELIZABETH, N. J.—New York Central railroad has awarded Tilt Hargan Co., 90 West Broadway, New York, general contract for constructing 1 and 3-story, 30x91-foot sand blast buildings.

NEWARK, N. J.—Stove Mfg. Corp., 184 Mulberry street, has been incorporated for $150,000 to manufacture stoves, ranges, heating apparatus, etc.

NEWARK, N. J.—Nuse Wagon Works has awarded general contract to Drill Construction Co., 972 Broad street, for constructing 2-story, 19x25x88-foot garage and shop building. Nathan Harris & Rudolph Kruger, Chamber of Commerce building, are architects.

NEWARK, N. J.—Thatcher Furnace Co. has awarded contracts to Wigton & Abbott Co., 552 West Twenty-third street, New York, for constructing 4-story, 49 x 82-foot brick and concrete warehouse and foundry building. M. Wayne, 41 St. Francis street, is treasurer of the Thatcher company.

OCEAN CITY, N. J.—L. Leslie Hoadley, 611 Eighth street, is taking bids for 2-story, 60x100-foot brick, steel and concrete building on Asbury avenue, for use as garage and repair shop.

BRONX, N. Y.—Paramount Iron Works has been formed with $500 capital by M. L. Zellermayer, M. Lipack and M. Kurman, with M. Saikler, 2 Avenue A, as attorney.

BROOKLYN, N. Y.—P. M. Stange, 64 North Ninth street, operator of a machine shop, is inquiring for a drill press, milling machine, planer, two shapers and three lathes.

BUFFALO, N. Y.—J. Kelles & Son, 1172 Elk street, is in the market for machine shop equipment.

LOCKPORT, N. Y.—M. Connor, 39 Niagara street, manufacturer of plumbers' specialties, is in the market for various small tools and attachments.

LONG ISLAND CITY, N. Y.—R. K. Le Blond Machine Tool Co. contemplates constructing 1 and 2-story, 180 x 180-foot concrete and brick manufacturing plant at Van Dam street and Nelson avenue. Zettel & Raop, 1206 Mercantile Library building, Cincinnati, are architects. R. K. Le Blond, Madison and Edwards roads, Long Island City, is president.

NEW YORK—Dubilier Condenser & Radio Corp. has plans for constructing plant addition on Forty-eighth street west of Fourth avenue.

NEW YORK—Yorkville Sheet Metal Works has been formed with $10,000 capital, by D. Ettinger, B. April, and J. Rosenthal, with I. Frankenberg, 31 First street, as attorney.

NEW YORK—The Modern Wire Frame Co., 412 East Twenty-third street, is reported as contemplating purchase of an electric spot welding machine.

NEW YORK—New York Pressing Iron Co. has been incorporated for $50,000 by J. and G. Purets, with E. L. Herbst, 116 Nassau street, as attorney.

NEW YORK—Sheffield Trimming & Stamping Corp. has been incorporated for $25,000 to make radio instruments, by M. and F. Creitzer, and D. Stutson, with S. R. Fleisher, 220 West Forty-second street, as attorney.

NEW YORK—Kipnis Bros. Auto Radiator Corp. has been formed with $5000 capital to manufacture and repair automobile parts, by S. and M. Kipnis and W. A. Michaels, with M. Perry, 25 West Forty-third street, as attorney.

NEW YORK—311 East Ninety-seventh Street Corp., 311 East Ninety-seventh street, has retained H. I. Feldman, 562 Fifth avenue, as architect for constructing 2-story, 100x130-foot garage and repair shop.

NEW YORK—A. B. Realty Corp. has retained Emery Roth, 119 West Fortieth street, as architect for a 4-story, 100x200-foot garage and repair shop. Arthur Brisbane is president of the A. B. corporation.

NEW YORK—Robinson, Butler, Hemingway & Co., have been incorporated with $50,000 capital, to manufacture and deal in coal tar and coal tar products, by Loren N. Wood, Bound Brook, N. J.

NEW YORK—S. Nappi, 316 East 116th street, has retained H. I. Feldman, 562 Fifth avenue, as architect, for a 1-story, 57x100-foot garage and repair shop, at 139th street east of South boulevard.

NEW YORK—J. G. White Engineering Co., 43 Exchange place, engineer, has awarded 650 tons of steel to the Phoenix Bridge Co. for work in connection with a power plant unit for the Staten Island Edison Co., at Livingston, Staten Island.

NEW YORK—Schnaier Realty Corp. has retained Nathan Rotholz, 311 Lenox avenue, as architect for 6-story, 75x102-foot public garage and service station. Milton Schnaier, 574 West End avenue, is in charge of the construction. William J. Taylor Co., 342 Madison avenue, is general contractor.

NEW YORK—Ferrobrandt has been organized with 1000 shares $100 par value preferred and 4000 common stock no par value, to manufacture metals and wrought iron, by F. P. Wilson, J. M. Snee, and E. Stack, with Barnes, Wilson & Halstead, 2 Rector street, as attorneys.

NEW YORK—A. Finkenberg & Sons has awarded contracts to Barney Ahlers Construction Co., 110 West Fortieth street, for 6-story, 110 x 206-foot reinforced concrete garage and warehouse between 134th and 135th streets. Frank E. Hahn, 1112 Chestnut street, Philadelphia, is architect.

SCHENECTADY, N. Y.—The General Electric Co. will start work shortly on a plant addition. The United Gas Improvement Corp., Philadelphia, general contractor, has awarded 250 tons of structurals for this project to the Belmont Iron Works.

SYRACUSE, N. Y.—William M. Ballard has been incorporated for $100,000 to manufacture tools, machines, etc., by W. M. and E. Ballard and G. E. Hynds, with the last as attorney, with offices at 201 Summit avenue.

SYRACUSE, N. Y.—F. A. Austin Pattern Shop, 301 Wallace street, was damaged by fire recently with light loss to patterns and drawings. Lamb Machine & Tool Co. was not injured by the flames.

TROY, N. Y.—Tell-A-Way Signal Co. has been incorporated for $100,000 to manufacture and deal in automobile accessories, by J. Petenel, J. Mancello and M. Colaneri, with P. J. Cirillo as attorney.

UTICA, N. Y.—H. Horwitz & Son, 610 Jay street have retained E. J. Berg, 236 Genesee street, as architect for 1-story, 50x200-foot brick and concrete garage and repair shop.

YONKERS, N. Y.—Henry Donahue, 652 Van Cortland Park, has let contracts to F. L. Whitney Co. for constructing 1-story, 72 x 82-foot foundry. R. Conant, Warburton avenue, is architect.

PORTLAND, OREG.—Steel Tank & Pipe Co.'s new plant is under construction and will be completed by Jan. 1. The company already is producing general plate work, also pressure pipe lines and storage tanks.

ASHEVILLE, N. C.—Asheville Power & Light Co. plans constructing hydroelectric plant at the head of Big Pigeon river, near the Tennessee line. The local plant will be increased also. An expenditure of $12,000,000 is planned during the next three years.

CHARLOTTE, N. C.—Gulf Refining Co., Pittsburgh, has purchased a 4-acre site here for constructing a plant to recondition and build trucks and equipment.

CHARLOTTE, N. C.—Milton McIntosh has awarded contracts for constructing 2-story fireproof garage on South Tyron street to Palmer-Spivey Construction Co., 404 South Tyron street. Lockwood, Green & Co., Piedmont building, are architects.

GOLDSBORO, N. C.—Wayne Agricultural Works, Inc., is constructing a woodworking plant, making additions to its foundry and storage facilities. The company manufactures plows and castings. D. W. Davis is president.

FARGO, N. D.—The local electric light plant was damaged badly by fire recently. The plant will be reconstructed.

AKRON, O.—The Key-Bar Wrench Co. has been incorporated with 600 shares no par value stock to manufacture and deal in wrenches and other tools, by John R. Long, I. S. Ballard, E. D. Eddy, R. W. Clark and Matthew Eskovitz.

BUTLER, O.—The Butler Foundry has been acquired by the Federal Corp., 304 Lexington avenue, Pittsburgh, which will enlarge the recently acquired plant for the continued production of plumbing castings, brake shoes, etc.

CINCINNATI, O.—Howe Tire & Service Co. has retained A. J. Huseman, 1210 Clay street, for 2-story, 30x60-foot garage and repair shop. J. C. and E. H. Howe, 1520 Race street, are operators of the Howe company.

CLEVELAND—C. J. Bath & Co., 1738 St. Clair avenue, machinery dealers, have awarded contracts for constructing 1-story, 67 x 94-foot machine shop on East Seventy-ninth street.

CLEVELAND—George Zellers, Jr., 1771 East Twelfth street, plans constructing 1-story, 55x138-foot brick garage and repair shop. Paul Matzinger, 509 Hunkin Conkey building, is architect.

DAYTON, O.—Frank A. Wagner, president of the Monarch Engineering Co. has purchased

the property at 8 Monument avenue, and will remodel the structure for his usage.

FINDLAY, O.—Master Paint Shop will enlarge its facilities following proposed incorporation with $30,000 capital. Besides manufacturing paint the company will install an upholstering and cleaning department for automobiles and install enameling ovens, etc.

NORWOOD, O.—American Laundry Machinery Co., Ross avenue, contemplates constructing a plant addition. R. M. Burton is president.

PORTSMOUTH, O.—McNeer, Nash Co. has retained Ridenour & Wile, First National Bank building, as architects for a 2-story, 107x124-foot garage, repair shop and sales room. Henry McNeer, 539 Second street, is owner.

TOLEDO, O.—Etna Machine Co. has let contract to Berkebile & Sons, 313 Broadway, for 3-story, 60 x 83-foot brick foundry building. E. F. Abbey, 3400 Maplewood avenue, is president of the Etna company.

WEST LAFAYETTE, O.—Moore Enameling & Mfg. Co., recently incorporated, is in the market for equipment for manufacturing kitchen ware. H. A. Sicker is manager. *Noted Oct.* 16.

DUNBAR, PA.—Western Maryland railroad has awarded contracts to T. J. Foley, 424 Fourth avenue, Pittsburgh, for constructing locomotive repair shops and engine house to replace those damaged by fire. H. R. Pratt, Hillen Station, Baltimore, is engineer. M. Byers, Old Y. M. C. A. building, Baltimore, is president of the road.

GROVE CITY, PA.—Consolidated Body Works was damaged by fire recently, badly injuring 1-story and 2-story buildings and several completed bodies.

LANCASTER, PA.—Liberty Can & Sign Co. has retained Herman Wohlsen, Woolworth building, as general contractor for constructing a group of seven buildings, costing approximately $300,000. T. Wilson Dubs, Water street, is in charge of the building.

PHILADELPHIA—S. Barenbaum has let contracts to S. Yellin, 3125 Montgomery avenue, for a 70-car public garage and repair shop. C. F. Neff, 1200 Locust street, is architect.

PHILADELPHIA—S. Keiserman, 1408 Oxford street, has awarded contracts to Henry P. Schneider, 3713 Old York road, for constructing 2-story, 60x66-foot automobile repair shop.

PHILADELPHIA—Property has been purchased by the H. B. Smith Co., Seventeenth and Arch streets, for the erection of a plant addition. The company manufactures bodies, radiators and plumbing supplies.

PHILADELPHIA—Simplex Valve Meter Co. has retained E. A. Wightman, Bankers Trust building as architect for 1-story, 90x175-foot manufacturing plant of brick and steel and concrete. J. W. Landows, 122 North Broad street, is vice president in charge.

PHILADELPHIA—Continental Fibre Co., manufacturer of vulcanized rubber, has awarded the Austin Co., engineer and builder, a contract for a building in Newark, Del. The plant will be 2-story, 139 x 280 feet, of steel frame construction, and will involve approximately 600 tons of structural steel. This is the fourth contract to be booked by the Austin Co. from the Continental company within the past four years.

PITTSBURGH—Pittsburgh Railway Co., 435 Sixth avenue, plans constructing 1-story, 156x231-foot car barn and shop addition on Second avenue.

READING, PA.—Reading Co. plans construction of a modern car repair shop here. The frog shop now located at the old East Penn shop will be moved to the present car shop.

SCRANTON, PA.—Peter Pestinikis, 345 Penn avenue, has retained F. J. Miller, Brooks building as architect for 2-story, 50 x 85-foot brick garage and service building.

WHITES FERRY, PA.—St. Michael's Industrial School for Boys, in charge of M. J. Hoban, 315 Wyoming avenue, Scranton, Pa., has awarded Phipple Bros., Laceyville, Pa., contract for 2-story, 50x98-foot shop building.

WILKES-BARRE, PA.—Haines, Jones & Cadbury, have awarded contracts to H. K. Ferguson Co., Cleveland, engineer and builder, for 1-story, 90x180-foot brick constructed plant. J. Harvey Berton is president of the Haines Jones organization.

WILLIAMSPORT, PA.—Williamsport Metal Stamping Co. was damaged by fire recently with most of damage to completed products.

PROVIDENCE, R. I.—Rhode Island Heating & Equipment Corp. has been formed with $100,000 capital, by Thomas Hampson, Pawtucket, R. I., Myrtle D. Wentworth and Gladys L. Potter.

CHATTANOOGA, TENN.—American Superpower Corp. has been incorporated with $10,000,000 capital, by S. X. Mitchell, 71 Broadway, New York, and others.

JOHNSON CITY, TENN.—Thornton-Cameron Mechanical Stove Co. has been incorporated for $20,000 to manufacture and deal in stoves, by W. C. Thornton, J. M. Cameron and H. M. Smith.

WACO, TEX.—Elliott & Wells, Inc., has been incorporated for $25,000 to manufacture and deal in automobile accessories, by N. Elliott, W. B. Wells, 515 North Seventeenth street, and W. F. Neal.

EVERETT, WASH.—Kenney Automatic Pump Co. has been organized by M. E. Kenney and associates with $50,000 capital, and with W. P. Bell as attorney.

LOGAN, W. VA.—Guyan Machine Shops are reported as inquiring for a lathe for turning steel locomotive wheels, 36-inch in size and smaller, in addition to several motors and engines and a drill press of 15-ton hydraulic capacity for armature shafts and hydraulic press for wheels of 250 to 300-ton capacity. *Noted Oct.* 9.

CHILTON, WIS.—Aluminum Specialty Co. has awarded W. H. Mielke, 1331 South Tenth street, Manitowoc, Wis., contract for constructing 2-story, 60x100-foot brick and steel addition. Smith, Reynolds, & Brandt, Dempsey building, Manitowoc, are architects. Walter Spindler, Seventeenth and Wollmer streets. Manitowoc, is manager of the Aluminum company. *Noted Oct.* 23.

LA CROSSE, WIS.—Machine Postage Service Co., 1107 West Fourth street, is in the market for dies, punch presses, spring wire, etc., for making stamp selling machines at DeKalb, Ill.

MENOMONEE FALLS, WIS.—Caeser Sheet Metal Works, is inquiring for sheet metalworking equipment.

LARAMIE, WYO.—A electrical generating plant will be constructed for the University of Wyoming according to recent action by the board of trustees of that institution.

Business in Canada

VANCOUVER, B. C.—British Columbia Valve Co., Ltd., has awarded contracts for constructing a plant on Terminal avenue. *Noted Oct.* 16.

TORONTO, ONT.—Ford Motor Co. of Canada will reopen its plant here. A site in East London has been obtained where an enlargement will be constructed.

MONTREAL, QUE.—Sealys Trucking Co., 914 Notre Dame street west, is in the market for complete equipment for a service station and public garage.

New Trade Publications

HARDWARE—A catalog of 649 pages substantially bound in cloth has been issued by the F. W. Heitmann Co., Houston, Tex., covering its line of hardware, mill supplies and automotive equipment.

METAL COATINGS—Spraying a coating of molten metal on metallic surfaces is the subject of a bulletin by the Metals Coating Co. of America, Philadelphia. The apparatus is described and a wide variety of uses for metallic coatings are illustrated.

CAR DUMPER—Revolving a loaded car of coal to dump its contents, as easily as one would empty a glass of water, is illustrated in a bulletin by the Wellman-Seaver-Morgan Co., Cleveland. It is profusely illustrated by photographs showing the dumper in action.

DAMPER REGULATORS—A bulletin by the Atlas Valve Co., Newark, N. J., gives detailed descriptions of its damper regulators for low pressure or vapor heating, medium and high pressure. Diagrams show how to apply the regulators to boilers and a full technical description is given.

STEEL FOR ELECTRICAL USES—The history, manufacture and magnetic properties of electrical sheet steels and ingot iron are presented in a well illustrated booklet by the American Rolling Mill Co., Middletown, O. An interesting chapter traces the development of magnetic material for use in generators and motors. Graphs are used to make comparisons and halftone illustrations assist in making clear many of the processes.

BRASS—Uses and methods of manufacture of various brass alloys are given in a booklet by the Scovill Mfg. Co., Waterbury, Conn. Modern methods are contrasted with the rule-of-thumb operation of the past and many questions that may have puzzled the buyer are made clear.

CHUCKS—A catalog recently issued by the Skinner Chuck Co., New Britain, Conn., is designed to present illustrated information on the company's line of chucks. The subject of chucks in general also is discussed and special problems are covered. A booklet entitled "Chucks and Their Uses" is another publication by this company, outlining the wide field of this device.

SAND RIDDLES—A pneumatic sand riddle for mixing facing, core sand and other molding sands is featured in a supplement to its regular catalog by the Adams Co., Dubuque, Iowa. The machine is portable, sturdy and operated from the compressed air line in any foundry. In another supplement the Adams Co. desribes its portable jolt squeezer which can be operated as a plain squeezer, combination jolt squeezer, or as a plain jolt machine, without adjustment.

Iron and Steel Scrap Prices

CORRECTED TO TUESDAY NOON GROSS TONS DELIVERED TO CONSUMER

Steel Works Scrap

HEAVY MELTING STEEL

Birmingham	11.50 to 12.00
Boston (dealers)	12.00 to 12.50
Buffalo	17.00 to 17.50
Chicago	16.75 to 17.25
Cleveland	16.00 to 16.25
Cincinnati (dealers)	13.50 to 14.00
Detroit (dealers)	14.00 to 14.50
Eastern Pennsylvania	16.50 to 17.50
New York (dealers)	12.50 to 13.00
Pittsburgh	19.00 to 19.50
St. Louis	15.00 to 15.50
Valleys	18.00 to 18.25
No. 1 railroad steel New York (dealers)	13.00 to 13.50

COMPRESSED SHEETS

Buffalo	16.00 to 16.50
Chicago	13.00 to 13.50
Cleveland	13.75 to 14.00
Detroit (dealers)	11.50 to 12.00
Pittsburgh	17.00 to 17.50
Valleys	15.75 to 16.00

BUNDLED SHEETS

Buffalo	14.00 to 14.50
Cincinnati (dealers)	9.50 to 10.00
Cleveland	12.50 to 12.75
Detroit	10.00 to 10.50
Eastern Pennsylvania	14.00
Pittsburgh	16.00 to 16.50
St. Louis	8.50 to 9.00
Valleys	14.00 to 14.25

SHEET CLIPPINGS, LOOSE

Chicago	9.25 to 9.75
Detroit	9.00 to 9.50

STEEL RAILS, SHORT

Birmingham	12.50 to 13.00
Detroit, No. 2	14.00 to 14.50
Chicago	18.00 to 18.50
Cincinnati (dealers)	14.50 to 15.00
Cleveland (over 6 ft.)	15.50 to 15.75
St. Louis	17.50 to 18.00

STOVE PLATE

Birmingham	13.50 to 14.00
Boston (consumers)	14.50 to 15.00
Buffalo	15.00 to 15.50
Chicago	16.50 to 17.00
Cincinnati (dealers)	10.00 to 10.50
Cleveland	13.50 to 13.75
Detroit (net tons) dealers	13.50 to 14.00
Eastern Pennsylvania	15.00
New York (dealers)	12.00 to 12.50
Pittsburgh	14.50 to 15.00
St. Louis	15.00 to 15.50

LOW PHOSPHORUS

Buffalo	19.00 to 19.50
Cincinnati (dealers)	15.50 to 16.00
Eastern Pennsylvania	19.50 to 20.50
Pitts. billet and bloom crops	22.50 to 23.50

SHOVELING STEEL

Chicago	16.50 to 17.50
Pittsburgh	14.00 to 14.50
St. Louis	15.00 to 15.50

KNUCKLES, COUPLERS, SPRINGS

Chicago	18.50 to 19.00
Eastern Pennsylvania	19.00 to 20.00
Pittsburgh	20.00 to 20.50
St. Louis	18.50 to 19.00

FROGS, SWITCHES, GUARDS

Chicago	17.00 to 17.50
Eastern Pennsylvania	16.50 to 17.00
St. Louis	16.00 to 16.50

BOILER PLATE, CUT

St. Louis	9.00 to 9.50

ANGLE BARS—STEEL

Chicago	17.50 to 18.00
St. Louis	16.50 to 17.00

Iron Mill Scrap

RAILROAD WROUGHT

Birmingham	$12.00 to 13.00
Boston (dealers)	13.50 to 14.00
Buffalo	16.00 to 16.50
Cleveland, No. 1	13.25 to 13.75
Chicago, No. 1	16.75 to 17.25
Chicago, No. 2	16.75 to 17.25
Cincinnati, No. 1 (dealers)	11.50 to 12.00
Detroit, No. 2	14.00 to 14.50
Eastern Pennsylvania	18.50 to 19.00
New York, No. 1 (dealers)	15.00 to 15.50
Pittsburgh, No. 1	15.00 to 15.50
Pittsburgh, No. 2	19.00 to 19.50
St. Louis, No. 1	14.00 to 14.50
St. Louis, No. 2	15.00 to 15.50

WROUGHT PIPE

Boston (dealers)	11.50 to 12.00
Buffalo	11.00 to 12.00
Eastern Pennsylvania	16.50 to 17.00
New York (dealers)	11.75 to 12.25

YARD WROUGHT

Boston	12.50 to 13.00
Eastern Pennsylvania	17.00 to 18.00

CITY WROUGHT

New York, long	13.50 to 14.00

BUSHELING

Buffalo	14.00 to 14.50
Chicago, No. 1	14.50 to 15.00
Chicago, No. 2	10.00 to 10.50
Cincinnati, No. 1 (dealers)	10.00 to 10.50
Cleveland, No. 1	13.50 to 13.75
Cleveland, No. 2	12.25 to 12.50
Detroit, No. 1	11.50 to 12.00
Detroit, No. 2 (new)	11.00 to 11.50
Detroit, No. 2 (old)	10.50 to 11.00
Eastern Pennsylvania	14.00 to 14.50
Pittsburgh, No. 1	14.00 to 14.50
St. Louis, No. 1	13.50 to 14.00

MACHINE SHOP TURNINGS

Birmingham	6.00 to 7.00
Boston (dealers)	8.50 to 9.00
Buffalo	12.00 to 12.50
Chicago	9.00 to 9.50
Cincinnati (dealers)	10.00 to 10.50
Cleveland	13.75 to 14.00
Detroit (dealers)	10.00 to 10.50
Eastern Pennsylvania	14.00 to 14.50
New York (dealers)	9.50 to 10.00
Pittsburgh	15.00 to 15.50
St. Louis	7.50 to 8.00
Valleys	13.00 to 13.25

CAST IRON BORINGS

Birmingham (chemical)	15.00 to 16.00
Birmingham (plain)	7.00 to 8.00
Boston (chemical)	11.50 to 12.00
Boston (dealers)	8.50 to 9.00
Buffalo	13.00 to 13.50
Chicago	12.00 to 12.50
Cincinnati (dealers)	10.00 to 10.50
Cleveland	14.00 to 14.50
Detroit (dealers)	10.50 to 11.00
Eastern Pennsylvania (chem.)	16.50 to 17.00
Eastern Pennsylvania	14.00 to 14.50
New York (dealers)	9.75 to 10.25
Pittsburgh	15.50 to 16.00
St. Louis	11.00 to 11.50
Valleys	14.00 to 14.50

MIXED BORINGS AND TURNINGS
For blast furnace use

Boston (dealers)	8.50 to 9.00
Detroit (dealers)	10.50 to 11.00
Eastern Pennsylvania	12.50 to 13.50
New York (dealers)	9.25 to 9.75

IRON AXLES

Birmingham	17.00 to 18.00
Boston (consumers)	31.00 to 32.00
Buffalo	25.00
Chicago	27.50 to 28.00
Cincinnati (dealers)	21.00 to 21.50
St. Louis	26.00 to 26.50
Eastern Pennsylvania	29.00 to 31.00

IRON RAILS

Buffalo	18.00 to 18.50
Chicago	18.25 to 18.75
Cincinnati (dealers)	12.00 to 12.50
St. Louis	16.50 to 17.00

PIPES AND FLUES

Chicago	12.00 to 12.50
Cincinnati (dealers)	8.00 to 8.50
Cleveland	12.00 to 12.50
St. Louis	11.00 to 11.50

RAILROAD GRATE BARS

Buffalo	14.50 to 15.00
Chicago	16.50 to 17.00
Cleveland	13.50 to 13.75
Eastern Pennsylvania	15.00 to 16.00
New York (dealers)	13.00 to 13.50
St. Louis	15.00 to 15.50

FORGE FLASHINGS

Boston (dealers)	9.50 to 10.00
Buffalo	13.00 to 13.50
Chicago	12.50 to 13.00
Cleveland (under 10 in.)	13.50 to 13.75
Cleveland (over 10 in.)	11.75 to 12.00
Detroit (dealers)	10.50 to 11.00

FORGE SCRAP

Boston (dealers)	9.00 to 9.50
Chicago	19.00 to 19.50
Eastern Pennsylvania	14.00 to 14.50

ARCH BARS AND TRANSOMS

Chicago	20.75 to 21.25
St. Louis	20.00 to 20.50

ANGLE BARS—IRON

Chicago	19.50 to 20.00
St. Louis	18.00 to 18.50

Iron and Steel Works Scrap

AXLE TURNINGS

Boston (dealers)	8.50 to 9.00
Buffalo	14.50 to 15.0
Chicago	14.00 to 14.50
Cleveland	14.50 to 15.00
Eastern Pennsylvania	15.00 to 15.50
Pittsburgh	16.50 to 17.50
St. Louis	12.00 to 12.50

STEEL CAR AXLES

Birmingham	16.50 to 17.50
Boston (consumers)	21.00 to 22.00
Buffalo	19.00 to 20.00
Chicago	19.25 to 19.75
Cleveland	17.50 to 18.00
Eastern Pennsylvania	23.00 to 24.00
Pittsburgh	22.00 to 22.50
St. Louis	19.50 to 20.00

SHAFTING

Boston (consumers)	21.00 to 22.00
Chicago	21.00 to 21.50
Eastern Pennsylvania	23.00 to 25.00
New York (dealers)	18.50 to 19.50
St. Louis	19.50 to 20.00

Iron Foundry Scrap

CAR WHEELS

Birmingham, tram car	14.00 to 15.00
Birmingham, iron	14.00 to 14.50
Boston (consumers)	17.00 to 17.50
Buffalo	17.00 to 18.00
Chicago, iron	18.00 to 18.50
Chicago, steel	19.00 to 19.50
Cincinnati	12.00 to 12.50
Eastern Pennsylvania	17.50 to 18.00
New York iron (dealers)	14.75 to 15.25
Pittsburgh, iron	18.50 to 19.00
Pittsburgh, steel	20.00 to 20.50
St. Louis, iron	16.75 to 17.50
St. Louis steel	18.00 to 18.50

NO. 1 CAST SCRAP

Birmingham, cupola	14.50 to 15.50
Boston (consumers)	19.00 to 19.50
Buffalo	17.00 to 17.50
Chicago, No. 1 machinery	19.00 to 19.50
Chicago No. 1 railroad or agricultural	18.50 to 19.00
Cincinnati No. 1 machinery cupola (net tons dealers)	18.00 to 18.50
Cleveland, cupola	18.25 to 18.75
Detroit (net tons) (dealers)	15.50 to 16.00
Eastern Pennsylvania, cupola	17.50 to 18.00
New York, cupola (dealers)	14.75 to 15.25
Pittsburgh, cupola	18.00 to 18.50
San Francisco, delivered	24.00
Seattle	18.00 to 20.00
St. Louis	18.50 to 19.00
St. Louis, agricultural	18.50 to 19.00
Valleys	18.50 to 19.00

HEAVY CAST

Boston (consumers)	16.00 to 17.00
Buffalo (breakable)	16.00 to 16.50
Cleveland	12.50 to 13.00
Detroit (automobile) (net ton)	15.50 to 16.00
Eastern Pennsylvania	16.50 to 17.00
New York (dealers)	13.50 to 14.00
Pittsburgh	15.50 to 16.00

MALLEABLE

Boston (railroad)	17.25 to 17.75
Buffalo	17.50 to 18.00
Chicago, railroad	18.50 to 19.00
Chicago, agricultural	18.50 to 19.00
Cincinnati, agricultural (dealers)	15.00 to 15.50
Cincinnati, railroad (dealers)	14.50 to 15.00
Cleveland, agricultural	17.00 to 17.25
Cleveland, railroad	18.25 to 18.50
Detroit (dealers)	15.50 to 16.00
Eastern Pennsylvania, railroad	15.50 to 16.50
Pittsburgh, railroad	16.50 to 17.00
St. Louis, agricultural	14.50 to 15.00
St. Louis, railroad	15.00 to 15.50

Miscellaneous Scrap

RAILS FOR ROLLING
5 feet and over

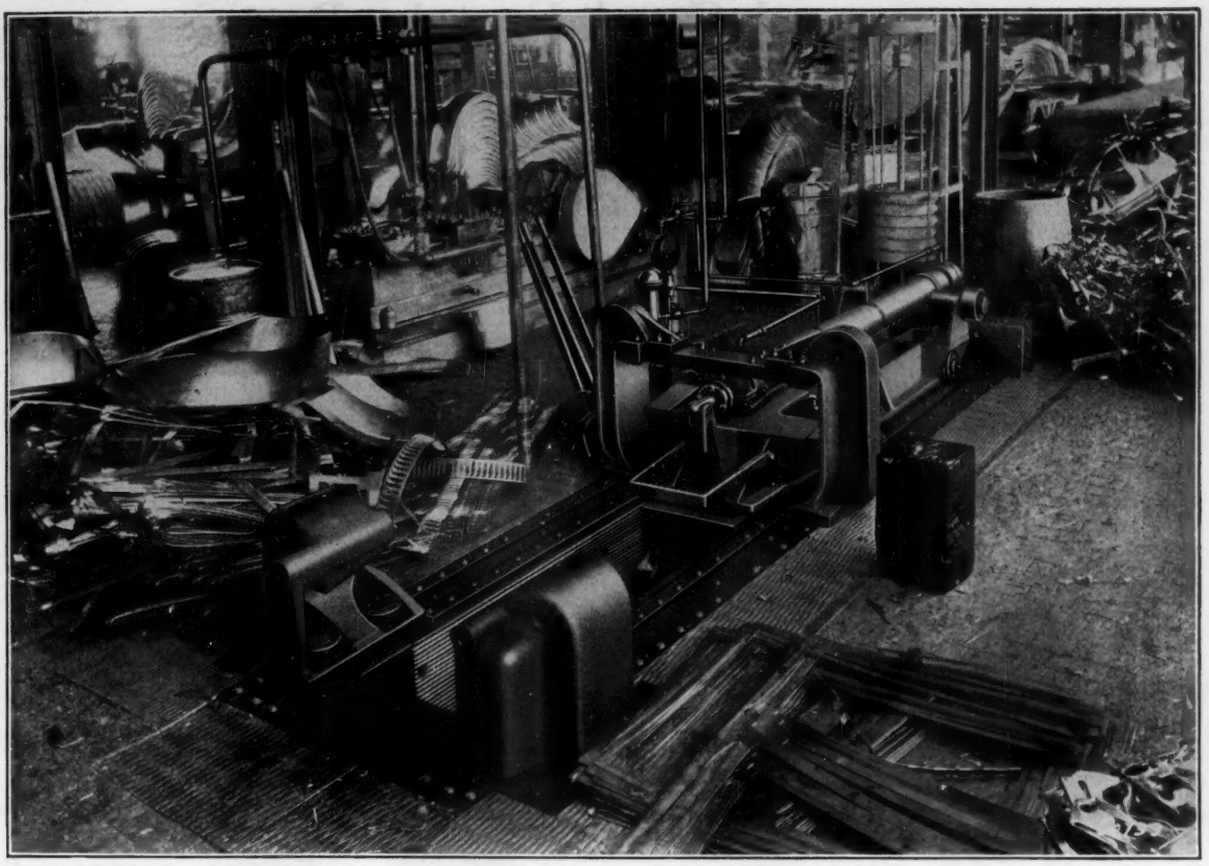
Birmingham tram car	15.50 to 16.00
Boston (dealers)	13.00 to 13.50
Chicago	17.25 to 17.75
Cleveland	16.25 to 16.75
Detroit	13.50 to 14.00
Eastern Pennsylvania	18.50
New York (dealers)	15.50 to 16.00
Pittsburgh district	19.00 to 19.50
St. Louis	17.25 to 17.50

LOCOMOTIVE TIRES

Chicago	18.75 to 19.25
St. Louis	16.50 to 17.00

LOW PHOSPHORUS PUNCHINGS

Chicago	18.00 to 18.50
Eastern Pennsylvania	19.00 to 20.00
Pittsburgh	20.00 to 20.50



Typical Installation in Well-Known Automobile Plant

WHY SHEET-SCRAP CAN BE PROFITABLY COMPRESSED

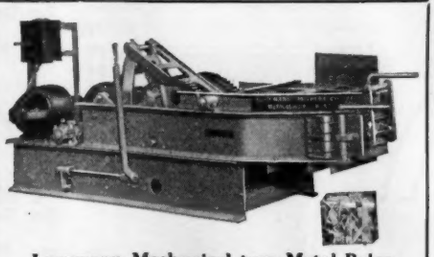
It commands at all times the best price;
It can be more conveniently stored;
It can be more economically handled;
It can be readily held for favorable markets;
It practically eliminates corrosion;
It permits of loading cars to capacity;
It saves much heat in remelting.

LOGEMANN SCRAP-METAL PRESSES

Hydraulic and Mechanical Types

LOGEMANN BROTHERS COMPANY
3126 Burleigh St. Milwaukee, Wis.

Also presses making crucible-size bricks of copper, brass, aluminum and other metals.



Logemann Mechanical-type Metal Baler

Please indicate character of scrap, quantity and heaviest gauge, when writing.

Iron and Steel Freight Rates

Finished Material

Pittsburgh, 100 pounds, carloads, to:	
New York	$0.34
Philadelphia	.32
Baltimore	.31
Boston	.365
Indianapolis	.31
Louisville	.33
Duluth	.60
Dallas (tin plate .90)	1.02
Omaha	.735
Topeka	.85
Milwaukee	.37
Buffalo	.265
Cleveland	.19
Cincinnati	295
Chicago	.34
Detroit	.295
Minneapolis and St. Paul	.60
Kansas City	.735
Denver	1.15
St. Louis	.43
New Orleans	.67
Birmingham	.58
Pacific coast (all rail)	1.15
Pacific coast (tin plate)	.90
Chicago, Gary, Indiana Harbor, Evanston, Joliet, and Waukegan to:	
Minneapolis, St. Paul; Waterloo, Iowa	$0.275
Atlanta	.58
Aberdeen, S. D.	.51
Ashland, Wis., Duluth	.305
Birmingham	.53
Cairo, Ill.	.245
Cedar Rapids, Iowa (wire .345)	.245
Des Moines, Iowa	.295
Grand Rapids, Mich	.26
Green Bay, Manitowoc, Wis.	.205
Evansville, Ind.	.28
Kalamazoo, Mich	.22
Kansas City (pipe .35)	.415
Madison, Wis.	.115
Memphis (rail and river)	.35
Memphis (all rail)	.42
Milwaukee	.08
Muskogee, Okla.	.69
New Orleans (rail and river)	.47
New Orleans (all rail)	.57
Peoria	.13
Pine Bluff, Ark. (pipe .55)	.46
Rock Island, Ill.	.155
Pacific Coast (tin plate .75)	1.00
Sioux City, Iowa, St. Joseph, Mo., and other Missouri river points	.415
St. Louis	.175
Terre Haute, Ind.	.155
Topeka, Kans. (pipe .435)	.51
Cleveland to:	
Chicago	$0.30
Columbus	.215
Detroit (rail)	.235
Akron	.09
Canton	.095
Cincinnati	.27
Buffalo	.25
Toledo	.20
Indianapolis	.28
St. Louis	.36
Atlanta	.57
New Orleans	.65
Philadelphia	.38
New York	.40
Boston	.43
Baltimore	.37
Chattanooga	.50
Youngstown to:	
Chicago	$0.32
Columbus	.25
Detroit	.265
Akron	.095
Canton	.095
Cincinnati	.285
Buffalo	.25
Toledo	.24
Indianapolis	.30
St. Louis	.38
Atlanta	.58
New Orleans	.66
Philadelphia	.355
New York	.375
Boston	.405
Baltimore	.345
Chattanooga	.50
Cleveland	.095
Lorain to:	
Chicago	$0.36
Tulsa, Okla.	.84
Kansas City	.63
Dallas	.84
Wichita	.84
Smackover, Ark.	.77
Coffeyville, Kans.	.70
*Shreveport, La.	.76
Caspar, Wyo.	1.125
Beaumont, Tex.	.655
Bakersfield, Long Beach, and Los Angeles	1.15

*Minimum 80,000 pounds.

To:	Coatesville, Pa.	Bethlehem, Pa.	Harrisburg, Pa.
Philadelphia	$0.10	$0.13	$0.145
New York	.175	.145	.19
Baltimore	.145	.19	.145
From:	**Lebanon, Pa.**	**Phoenixville, Pa.**	**Pottsville, Pa.**
Philadelphia	$0.13	$0.095	$0.145
New York	.10	.175	.19
Baltimore	1.55	.155	.19
From	**Johnstown, Pa.**	**Claymont, Pa.**	**Pencoyd, Pa.**
Philadelphia	$0.295	$0.08	$0.06
New York	.32	.175	.175
Baltimore	.285	.145	.155

To:— From	Boston	Worcester	Providence	New Haven
Pennsylvania				
Pittsburgh	$0.365	$0.365	$0.365	$0.365
South Bethlehem	.255	.255	.255	.255
Coatesville	.255	.255	.255	.255
Harrisburg	.255	.255	.255	.255
Phoenixville	.255	.255	.255	.255
Pottsville	.255	.255	.255	.255
Johnstown	.350	.350	.350	.350
Philadelphia	.255	.255	.255	.255
Reading	.255	.255	.255	.255
New York				
Buffalo	.345	.345	.345	.345
Syracuse	.310	.310	.310	.310
Lackawanna	.345	.345	.345	.345
Tonawanda	.345	.345	.345	.345
New Jersey				
Perth Amboy	.255	.255	.245	.245
Ohio				
Youngstown	.405	.405	.405	.405
Connecticut				
Southington	.220	.205	.210	.140
Collinsville	.220	.210	.215	.160
Rhode Island				
Phillipsdale	.165	.165	.110	.215
Massachusetts				
Worcester	.165	...	.165	.165
Fitchburg	.950	.145	.185	.220
Danvers	.750	.100	.195	.225
W. Wareham (R. R. Station Treamount)	.165	.190	.165	.220

Pig Iron

Mahoning and Shenango valleys to:	
Cleveland	$1.76
Newark, N. J.	6.03
Boston	6.43
Philadelphia	5.63
Pittsburgh	1.76
Chicago	4.79
St. Louis	5.80
Minneapolis, St. Paul	7.83
Buffalo to:	
Albany, N. Y.	$2.27
New England (rail)	4.91
New York and Brooklyn (rail)	4.91
Philadelphia	4.91
Rochester	1.39
Virginia furnaces to:	
Philadelphia	$5.17
New England	5.92
Brooklyn, Jersey City, Newark	5.54
Birmingham, Ala., to:	
Boston (rail)	$9.61
Boston (rail and water)	6.91
Cincinnati	4.05
Chicago	6.01
Cleveland	6.01
Louisville, Ky.	3.72
Minneapolis, St. Paul	8.77
New York	9.24
Newark	8.28
Jersey City	8.05
Philadelphia (rail)	7.81
Philadelphia (rail and water)	6.01
Pittsburgh	6.84
St. Louis	5.17
Chicago to:	
Des Moines	$4.26
Minneapolis, St. Paul	3.04
Milwaukee	1.00
Moline, Ill.	1.76
Omaha	5.47
St. Louis	2.16
Ironton and Jackson, O., to:	
Chicago	$4.79
Cincinnati	2.27
Cleveland	3.02
Detroit	2.91
Indianapolis	2.90
Minneapolis, St. Paul	7.83

Export Rail Rates

Manufactured Iron and Steel

Cents per 100 pounds in Carloads

From	To New York	To Baltimore	To Boston	To Philadelphia	To Pacific Coast
Pittsburgh	25.50	22.50	25.50	23.50	72.00
Wheeling	25.50	22.50	25.50	23.50	72.00
Youngstown	28.50	25.50	28.50	26.50	72.00
Chicago	42.50	39.50	42.50	40.50	50.00
Cleveland	30.00	27.00	30.00	28.00	72.00
Cincinnati	37.00	34.00	37.00	35.00	72.00
South Bethlehem	11.00	14.50	....	10.00	....

Billets

Per Gross Ton

From	To New York	To Baltimore	To Boston	To Philadelphia	To Pacific Coast
Pittsburgh	$4.30	$3.70	$4.30	$3.90	$16.13
Wheeling	4.30	3.70	4.30	3.90	16.13
Youngstown	4.70	4.10	4.70	4.30	16.13
Chicago	7.10	6.50	7.10	6.70	11.20
Cleveland	5.00	4.40	5.00	4.60	16.13
Cincinnati	6.20	5.60	6.20	5.80	16.13

Pig Iron

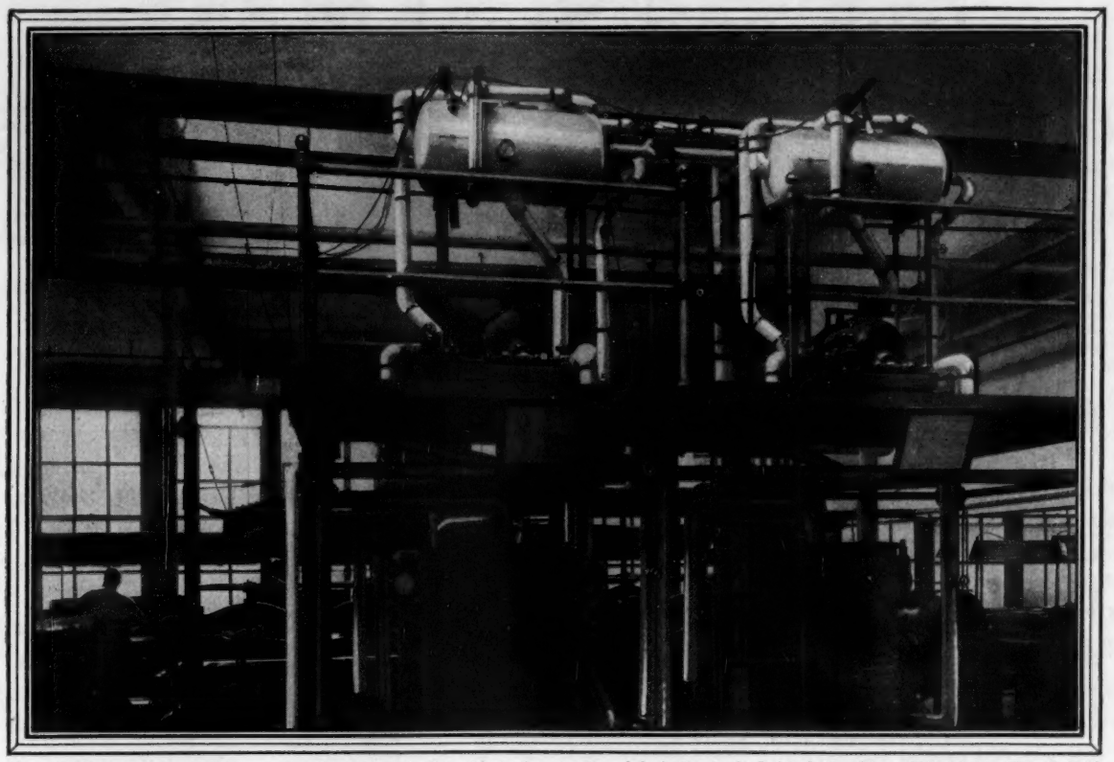
Per Gross Ton

From	To New York	To Baltimore	To Boston	To Philadelphia	To Pacific Coast
Pittsburgh	$4.10	$3.50	$4.10	$3.70	$14.78
Wheeling	4.10	3.50	4.10	3.70	14.78
Youngstown	4.50	3.90	4.50	4.10	14.78
Chicago	6.80	6.20	6.80	6.40	12.99
Cleveland	4.80	4.20	4.80	4.40	14.78
Cincinnati	5.90	5.30	5.90	5.50	14.78

Rails

Per Gross Ton

From	To New York	To Baltimore	To Boston	To Philadelphia	To Pacific Coast
Pittsburgh	$4.00	$3.70	$4.00	$3.80	$15.46
Youngstown	4.20	3.90	4.20	4.00	...
Chicago	6.75	6.15	6.75	6.35	11.20



Cranetilt direct-return steam traps arranged to automatically maintain the water line of the boilers in the Public Ledger Plant, Philadelphia. Chas. B. Reid is chief engineer, Chas. J. Lundstrom is operating engineer. Installation by Christopher J. Doyle, Contractor, Philadelphia

"TRAFFIC COPS" FOR YOUR PIPE-LINES

On pipe-lines and apparatus in use in practically every branch of American industry, thousands of Cranetilt traps are continually on the job removing condensation as fast as it accumulates and keeping all channels clear. Yet no steam or vapor is ever allowed to escape.

Made in three types, these dependable specialties can be arranged to return hot condensation from full pressure lines directly to the boilers, to pump against high pressures out of a vacuum, or to discharge into the atmosphere.

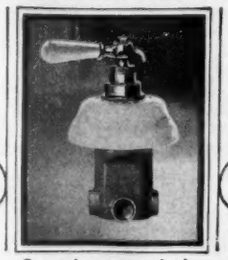
They are simple in design, substantial in every detail of construction and have all working parts on the outside, always in sight. They are supplied to meet all regular and special requirements of capacity, pressure and temperature.

CRANE

GENERAL OFFICES: CRANE BUILDING, 836 S. MICHIGAN AVENUE, CHICAGO
CRANE LIMITED: CRANE BUILDING, 386 BEAVER HALL SQUARE, MONTREAL

Branches and Sales Offices in One Hundred and Forty-five Cities
National Exhibit Rooms: Chicago, New York, Atlantic City, San Francisco and Montreal
Works: Chicago, Bridgeport, Birmingham, Chattanooga, Trenton and Montreal

CRANE EXPORT CORPORATION: NEW YORK, SAN FRANCISCO
CRANE-BENNETT, LTD., LONDON
CIE CRANE: PARIS, NANTES, BRUSSELS



Crane shower control valve

Iron and Steel Prices

Nuts and Bolts

F. o. b. Pittsburgh and Chicago district mills

Hot pressed square tapped or blank .....$4.50 off list
Hot pressed hexagon tapped or blank .....5.00 off list
Cold punched square or hexagon blank .....4.50 off list
Cold punched square or hexagon tap- .....4.50 off list
Cold punched semifinished hexagon nuts ⅝-inch and larger ..75, 10, 10 and 5 off
Cold punched semifinished hexagon nuts 9/16-inch and smaller..80, 10, 10 and 5 off
Price f.o.b. Pittsburgh, packages of 50.

CARRIAGE BOLTS

(⅜ x 6", smaller and shorter)

Rolled thread .....60 and 10 off
Cut thread (all sizes) .....60 off

MACHINE BOLTS

(⅜ x 4", hot pressed nuts)

Rolled thread .....60 and 20 off
Cut thread (all sizes) .....60 and 10 off

(All sizes cold punched nuts)

Cut thread .....50, 10 and 5 off
Lag screws .....70 off
Plow bolts Nos. 1, 2 and 3 heads.. .....50 and 10 off
4 to 10 heads .....50-10 + 20 off
Flat and round head stove bolts .....80, 10 and 5 off
Other stove bolts .....80, 10 and 10 off
Tap bolts .....30 off
Bolt ends with hot pressed nuts .....60 and 10 off
Bolt ends with cold punched nuts .....50 and 10 off
Blank bolts .....65 and 10 off
Rough stud bolts with nuts (250 pieces or more of a size) .....50 off

SEMIFINISHED CASTELLATED AND SLOTTED NUTS

Per 1000, Pittsburgh and Chicago

	S. A. E. Castellated	U. S. S. Slotted
¼	$ 4.25	$ 4.25
5/16	4.90	4.90
⅜	5.90	6.25
7/16	7.50	8.50
½	9.75	10.00
9/16	13.25	13.50
⅝	16.25	16.50
¾	22.50	23.00
⅞	34.00	34.00
1	53.00	55.00
1⅛	85.00	85.00
1¼	120.00	125.00
1⅜	170.00	170.00
1½	200.00	200.00

Larger sizes—Prices on application.

HEXAGON CAP AND SET SCREWS

Milled .....85 and 10 off
Upset .....85, 10, 10 and 5 off

Rivets

Structural rivets, carloads Pittsburgh and Cleveland.. 2.60c
Structural rivets, carloads, Chicago 2.75c
Rivets, 7/16-in. and smaller Pittsburgh and Cleveland..70, 10 and 5 off
Rivets, 7/16-in. and smaller Chicago .....70, 10 off

Washers

Wrought, c. l., Chicago dist. $5.75 to$6.15 off
Wrought, c. l., Pitts. dist.....$6.00 off
Lock washers f.o.b. factory .....80 off

Steel Pipe

Pittsburgh and Lorain basing discounts, jobbers' carloads.

Evanston, Ill., and Indiana Harbor, Ind., take differential 2 points less discount or $4 per ton higher net.

Chicago takes differential 2½ points less than Pittsburgh-Lorain basis or $5 per ton higher net.

Butt Beld

	Black	Galvanized
⅛-inch	45	19½
¼ and ⅜-inch	51	25½
½-inch	56	42½
¾-inch	60	48½
1 to 3-inch	62	50½
Lap Weld		
2-inch	55	43½
2½ to 6-inch	59	47½
7 to 8-inch	56	43½
9 and 10-inch	54	41½
11 and 12-inch	53	40½

REAMED AND DRIFTED

Butt Weld		
1 to 3-inch	60	48½
Lap Weld		
2-inch	53	41½
2½ to 6-inch	57	45½

EXTRA STRONG—PLAIN ENDS

Butt Weld		
⅛-inch	41	24½
¼ and ⅜-inch	47	30½
½-inch	53	42½
¾-inch	58	47½
1 to 1½-inch	60	49½
2 to 3-inch	61	50½
Lap Weld		
2-inch	53	42½
2½ to 4-inch	57	46½
4½ to 6-inch	56	45½
7 to 8-inch	52	39½
9 and 10-inch	45	32½
11 and 12-inch	44	31½

DOUBLE EXTRA STRONG

Butt Weld		
½-inch	42	32½
¾ to 1½-inch	45	35½
2 to 2½-inch	47	37½
Lap Weld		
2-inch	41	32½
2½ to 4-inch	43	34½
4½ to 6-inch	42	33½
7 to 8-inch	38	25½

Wrought Iron Pipe

Pittsburgh basing discounts, jobbers' carloads. Individual quotations made on delivered basis

THREADS AND COUPLINGS

Butt Weld		
¼ and ⅜-inch	+11	+39
½-inch	22	2
¾-inch	28	11
1 to 1½-inch	30	13
Lap Weld		
1¼ and 1½-inch	Upon application	
2-inch	23	7
2½ to 6-inch	26	11
3 to 6-inch	28	13
7 to 12-inch	26	11

PLUGGED AND REAMED

Two points less than above

EXTRA STRONG, PLAIN ENDS

Butt Weld		
¼ and ⅜-inch	+19	+54
½-inch	21	7
¾-inch	28	12
1 to 1½-inch	30	14
Lap Weld		
2-inch	23	9
2½ to 4-inch	29	15
4½ to 6-inch	28	14
7 to 8-inch	21	7
9 to 12-inch	16	2

DOUBLE EXTRA STRONG

Butt Weld		
½-inch	+47½	+59½
½-inch	+28	+40
1-inch	+34	+40
1¼-inch	+28	+40
1½-inch	+27	+39
Lap Weld		
2 and 2½ inches	+13	+25
3 to 4-inch	+ 8	+17
4½ to 6-inch	+ 9	+18
8-inch	+12	

Boiler Tubes

Pittsburgh less carload discounts. Carload 4 points larger

STEEL (Lap Welded)

2 and 2¼-inch ..... 23 off
2½ and 2¾-inch ..... 33 off
3-inch ..... 36 off
3¼ to 3¾-inch .....38½ off
4 to 13-inch ..... 42 off

CHARCOAL IRON

1½-inch ..... +22
1¾-inch ..... +12
2 and 2¼-inch ..... + 2
2½ to 3-inch 3
3¼ to 4½-inch 5

SEAMLESS COLD DRAWN*

1-inch ..... 51 off
1¼ and 1½-inch ..... 43 off
1¾-inch ..... 27 off
2 and 2¼-inch ..... 18 off
2½ and 2¾-inch ..... 28 off
3 and 3¼-inch ..... 32 off
3½ and 3¾-inch ..... 33 off
4-inch ..... 37 off
4½ and 5-inch ..... 29 off

SEAMLESS HOT HOLLED*

3 and 3¼-inch ..... 34 off
3½ and 3¾-inch ..... 35 off
4-inch ..... 39 off

SEAMLESS STEEL MERCHANT BOILER TUBES*

Extras:

Add $8 per net ton for more than four gages heavier than standard and add 10 per cent to theoretical weight.

Add 5 per cent for lengths over 24 feet and not over 26 feet.

Smaller tubes than 1-inch and lighter than standard gage to be sold at mechanical tubing list and discount.

Intermediate sizes and gages not listed above take price of next larger outside diameter and heavier gage.

SEAMLESS STEEL MECHANICAL TUBING*

Base Discounts

Carbon, 0.10 to 0.20 per cent ..... 83 off
Carbon, 0.30 to 0.40 per cent .... 81 off
Carbon, 0.40 to 0.50 per cent ....net price
Plus differentials and extras for cutting.

SEAMLESS STEEL LOCOMOTIVE AND SUPERHEATER TUBES*

Outside diameter	Gage	Net prices per foot f.o.b. Pittsburgh Price
2-inch	12-gage	15c
2-inch	12-gage	15c
2-inch	11-gage	16c
2-inch	10-gage	17c
2¼-inch	12-gage	17c
2¼-inch	11-gage	18c
2¼-inch	10-gage	20c
3-inch	7-gage	35c
1½-inch	9-gage	15c
5⅜-inch	9-gage	55c
5½-inch	9-gage	57c

Plus usual extras for forming and for long lengths.

*Published discounts are subject to considerable shading, in some cases as much as three to five extra 5 per cents.

Cast Iron Water Pipe

Prices per net ton

Class B Pipe

Four-inch, Chicago .....$53.20 to 54.20
Six-inch and over, Chicago .. 49.20 to 50.20
Four-inch, Birmingham ..... 48.00 to 49.00
Six-inchand over Birmingham 44.00 to 45.00
Four-inch, New York ..... 64.50 to 65.60
Six-inch and over, New York 59.50 to 60.60
Standard fittings, Birmingham, base..$110.00
6 to 24-inch, base; over 24-inch, plus $20; 4-inch, plus $20; 3-inch, plus $20; gas pipe fittings, $5 higher.
Class A pipe is $5 higher than Class B.